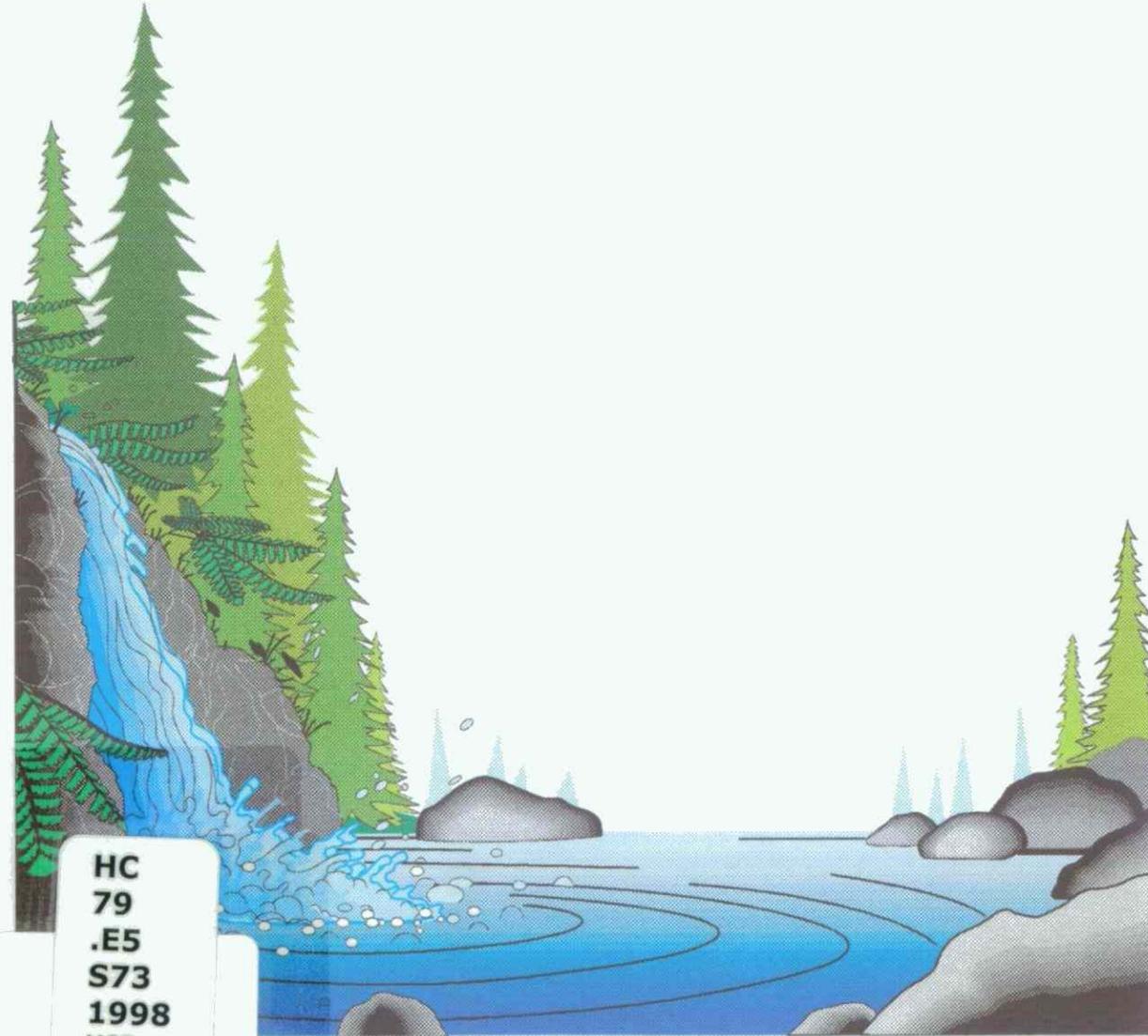


STANDARDS DEVELOPMENT BRANCH

BUSINESS PLAN

1997/98



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Standards Development Branch
business plan : 1997-1998.

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STANDARDS DEVELOPMENT BRANCH
BUSINESS PLAN

1997 - 1998

Environmental Sciences and Standards Division
Ontario Ministry of Environment and Energy

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Standards Development Branch
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APPENDIX A

SDB Section Work Plans and Section Strategic Framework

- i) Aquatic Sciences Work Plan and Strategic Framework
- ii) Aquatic Toxicology Work Plan and Strategic Framework
- iii) Atmospheric Studies Work Plan and Strategic Framework
- iv) Environmental Standards Work Plan and Strategic Framework
- v) Ecosystem Sciences Work Plan and Strategic Framework
- vi) Phytotoxicology Work Plan and Strategic Framework
- vii) Pesticides Work Plan and Strategic Framework

- viii) Technical Services Plan and Strategic Framework
- ix) Water and Wastewater Optimization Work Plan and Strategic Framework
- x) Director's Office Work Plan

APPENDIX B

Three Year Plan for Standards Setting

Summary of standards to be developed each year

APPENDIX C

Expert Advice Database

APPENDIX D

Phytotoxicology Investigation Reports

APPENDIX E

Aquatic Toxicology List of Audit Samples

Sediment Bioassay Reports

APPENDIX F

Standards Development Branch Staff List

1.0 OUR MISSION

In support of the Ministry's mandate and its goal for a healthy environment, Standards Development Branch **mandate** is to provide toxicological and risk assessment expertise for ministry programs, policies, and regulations; to identify and assess threats to ecosystem health and develop effective solutions; and to engage in technology development and transfer by:

- developing and promulgating environmental standards to protect human and ecosystem health and the quality of the natural environment.
- providing toxicological advice and diagnostic services on environmental contaminants and pesticides.
- assessing the performance of new and emerging environmental technologies and promoting technology transfer.
- administering the Pesticides Act and providing direction on the responsible use of pesticides in Ontario.

Key activities include standards development, risk assessment, terrestrial and aquatic toxicology assessments, expert advice on effects of toxic pollutants, application of aquatic and atmospheric sciences to investigate studies, optimization of drinking water and wastewater treatment facilities, watershed management and lakeshore development capacity assessment, pesticides management.

These Branch services support clients in Operations Division, other branches of Environmental Sciences and Standards Division (ESSD), Legal Services Branch, Conservation and Prevention Division and other agencies. Branch clients rely on these services to effectively deliver on the Ministry's core business of Environmental Protection which focuses on: Clean Water, Clean Air, Clean Land and Ecosystem Health/Multimedia.

1.1 CLEAN WATER

The Branch develops standards for clean water. These standards define acceptable or desirable environmental quality for drinking water, surface water and sediment, and safeguard human health, the ecosystem and the quality of the natural environment. These standards are used to make management decisions about chemical contaminants in water.

Upon request, the Branch provides expert advice for emergency responses to chemical spills, for court cases, for use in approvals and for the general assessment of impaired water quality.

The Branch is responsible for the long-term monitoring of aquatic effects (effluent toxicity) from effluents. This program provides an important environmental indicator of progress towards meeting

the goals and objectives of other Ministry programs. The Branch also conducts assessments of contaminated sediments.

1.2 CLEAN AIR

The Branch develops standards for clean air. Air standards define acceptable or desirable environmental quality of air for the protection of human health and the ecosystem. They promote sound environmental planning and management practices, and protect air quality and terrestrial life.

Upon request, the Branch provides expert advice on air quality impairment for emergency responses to chemical spills, for court cases, and for use in approvals.

1.3 CLEAN LAND

The Branch develops standards for clean land. The Ministry's new *Guideline for Use at Contaminated Sites* is a voluntary guideline for clean-up of contaminated soils. This will help property owners rehabilitate former industrial and commercial sites for new beneficial uses. As follow-up, the Branch audits site reports, provides sampling assistance and reviews and approves site-specific risk assessments. It promotes sound environmental planning and management practices to encourage sustainable land use. The branch is also developing waste placement guidelines for excess soil materials, compost and dust suppressants. This information will help municipalities and other proponents to deal with waste disposal quickly and with certainty while ensuring environmental protection.

Upon request, the Branch provides expert advice for soil and vegetation contamination from chemical spills and ongoing industrial activities.

The Branch is responsible for a long-term monitoring program for terrestrial (crop and forest health) effects.

1.4 ECOSYSTEM HEALTH/MULTI-MEDIA

The Branch administers the pesticide regulation to prevent adverse effects on land, air and water from pesticides. It promotes the responsible use of pesticides and encourages stakeholders to undertake stewardship activities.

The branch also undertakes baseline risk assessments which incorporate multi-media considerations, for example the assessment of land filling compared to incineration.

2.0 BRANCH PROGRAMS AND MAJOR STRATEGIC ISSUES THAT NEED TO BE ADDRESSED IN 1997-98

The services provided by Standards Development Branch are grouped into five program areas:

- (1) Standards Development
- (2) Expert Advice
- (3) Terrestrial Effects Assessment
- (4) Aquatic Toxicology
- (5) Pesticides Management

The Branch has analysed each program area to identify any challenges that need to be addressed to accomplish its long-term mission and meet current performance targets. The following is a summary description of each program, its key deliverables and the major strategic issues that need to be addressed by the Branch to maintain efficient program delivery.

2.1 STANDARDS DEVELOPMENT

Program Description

The branch sets environmental quality standards to protect human health, and the aquatic and terrestrial environment. This includes the development of multi-media standards. Standards are developed for air, soil, ground water, surface water, drinking water, sediment and biota (see Appendix B). Standards are used in Certificates of Approval (C's of A), compliance, monitoring and abatement programs, environmental assessment, enforcement and legal activities, emergency response, remediation and clean-up, public concerns and complaint investigations.

Strategic Issues

A major challenge is the need to deliver an increased number of scientifically-sound standards in a short turn-around time while undergoing full consultation with stakeholders. This need has been driven by several factors:

- ▶ the provincial government auditor identified a large number of air standards that were out-of-date, and concluded that the standards need to be revised more frequently to stay current with the science as it evolves. A major effort is underway to revise the air standards;
- ▶ the government directions to *do better with less*, to ensure that clients receive a useful, usable service and to ensure that all stakeholders receive fair and consistent treatment;
- Ministry staff will be working closely with affected stakeholders to arrive at standards which

will achieve our mutual environmental and economic goals for the province. The intent of these consultations is to solicit scientific and technical information pertaining to the proposed standards and how they might be implemented in a fair and equitable manner in Ontario. Stakeholders are requesting significant involvement and are requesting to be involved at the earliest stages of development. This is an additional challenge to staff and delivery schedules.

- ▶ the public expects government assurances that contaminants found in the environment do not pose an unacceptable health risk;
- ▶ constantly improving analytical and monitoring capabilities uncover new chemicals and toxic effects in the environment, requiring assessment and action; and
- ▶ environmental standards are very important to regulatory agencies, interest groups, the public and industry. Public consultations and appeal hearings over the last few years have included major debates on the *acceptable* level of a standard.

To make standard-setting more cost-effective, timely and responsive to stakeholders, the Branch has several strategies, designed to make the best use of available resources and information:

Harmonization - The Canadian Council of Ministers of the Environment (CCME) is a federal-provincial group that develops national standards for air, surface water, sediment and soil. The Branch already works closely with CCME developing surface water objectives and with the Federal/Provincial/Territorial Subcommittee on Drinking Water in establishing drinking water objectives. A major effort has just been initiated through CCME to establish Canada-wide standards for national priorities. Six substances and two protocols have been identified for priority development.

Adoption of standards - To take advantage of work already completed, the Branch is investigating the adoption of air standards set by environmental agencies in other jurisdictions. This is seen as the predominant strategy for delivering 70 air standards by 1999.

Partnerships -

With Other Jurisdictions (bilateral arrangements in contrast to national arrangements through CCME) - To share the development of standards, the Branch is investigating the possibility of establishing partnerships with progressive U.S. states (for example, Massachusetts, New York and California) and other provinces, where there is a mutual need for a standard. To ensure all stakeholders receive fair treatment, the Branch will invite participation in standards development by proponents and industry associations. A standards development plan (see the Three Year Plan for Standards Setting - Appendix B) will be updated and circulated annually.

With Stakeholders - The Branch is actively encouraging our stakeholders to participate in the standards development process. Protocols will be established and adhered to and peer review will be conducted on new and revised standards.

2.2 EXPERT ADVICE

Program Description

Upon request from a client, the Branch provides expert advice on the hazards and risks of contaminants and pesticides to terrestrial and aquatic ecosystems and to human health. This includes testimony in court proceedings and environmental hearings, site-specific risk assessments, reviews of Environmental Assessment submissions, advice on biotechnology and on the potential impact of substances that do not have Ontario standards. Appendix C contains a current listing of requests. A listing of expert advice provided in 1996-97 is provided in Appendix C. In FY 1996-97, over 100 requests were made by external stakeholders.

Strategic Issues

In 1996 the Ministry released a new site clean-up guideline which offers options and flexibility. To alleviate the need for the branch to review site-specific risk assessments as they are forwarded from Operations Division, a system of third party review has been adopted which requires proponents to have all site-specific risk assessments reviewed by a third party prior to proceeding with the remediation plan. This requirement may reduce the burden for full review of site-specific risk assessments by Ministry staff.

2.3 TERRESTRIAL EFFECTS ASSESSMENT

Program Description

The Branch investigates soil contamination, vegetation injury, and effects on domestic livestock near point sources of pollution for abatement and enforcement activities and in response to public complaints. Support is also provided for spills response and assistance with the verification and audit of soil clean-up efforts. The Branch is collaborating with federal and provincial natural resource agencies to assess and document the terrestrial environmental impacts of long range-transported air pollutants such as acidic precipitation, ozone and other toxic substances. Environmental bioassays of soil toxicity are conducted for legal and enforcement activities and to support the development of standards. A listing of studies conducted in 1996-97 is provided in Appendix D.

Strategic Issues

The Branch has assumed additional responsibility for terrestrial effects investigations by taking over investigations and assessments that had been done previously by the Northern Region of MOEE. This will significantly increase travel costs and shift priorities for client requests to conduct investigations in other parts of the province.

2.4 AQUATIC TOXICOLOGICAL ASSESSMENTS

Program Description

The Branch conducts audits and toxicity evaluations for acute lethality testing on industrial and municipal wastewater discharges for Ontario, primarily for the MISA effluent regulations under the *Environmental Protection Act*. This program also includes: evaluating the current and past status of the toxicity of discharges in the province to track trends over time and to identify high priority discharges; legal-testing for investigation and enforcement under the *Environmental Protection Act*, *Ontario Water Resources Act* and the federal *Fisheries Act*; and testing contaminated sediments for toxic effects and evaluating their potential environmental impacts. A listing of studies conducted in 1996-97 is provided in Appendix E. The Branch also represents the Ministry in the development of National toxicity test methods. These methods are developed by consensus among federal and provincial environmental agencies through the Intergovernmental Aquatic Toxicity Group.

Strategic Issues

The future role of acute and sub-lethal toxicity tests in regulatory and assessment activities may be gaining in importance. Sub-lethal tests are gaining in importance as effluent improvements resulting from MISA have resulted in most effluents being non-acutely toxic. Determination of any chronic or more subtle effects on aquatic life from effluents requires the use of sub-lethal toxicity tests.

The potential for revenue generation by contracting Ministry effluent toxicity testing services to external clients is being evaluated.

The Branch may also be able to provide a service to both provincial and national water quality standards setting by filling toxicity data gaps for specific chemicals through toxicity testing. This would reduce uncertainty surrounding many standards and thus alleviate some stakeholder concerns with many standards.

2.5 PESTICIDES MANAGEMENT

Program Description

The Ministry is responsible for administering the *Pesticides Act* and Regulation 914. Pesticide use, sale, disposal, transportation and storage are provincially regulated to prevent adverse effects of pesticides on land, air and water. The Ministry also provides direction on the responsible use of pesticides in Ontario. The Ministry encourages and promotes the reduced reliance on and judicious use of pesticides through the implementation of integrated pest management methods and alternative strategies to the use of chemical pesticides. The Branch, Operations Division and the Ontario Pesticides Advisory Committee share responsibility for Ontario's pesticides management program which includes:

- ▶ classification of pesticides for sale and use
- ▶ licensing of pesticide applicators (study material and exams)
- ▶ certification of farmers and pesticide vendors
- ▶ development of regulatory amendments, policies and guidelines
- ▶ inter-jurisdictional activities (for example, Canada-Ontario Agreement (COA) and Federal Pesticide Reform)
- ▶ pesticide container management
- ▶ alternatives to pesticides

Strategic Issues

Ministry-wide actions are required to reduce the overall burden of environmental regulations, and to remove barriers to business by dropping requirements of little value for environmental protection. The Branch plans to overhaul Ontario's pesticides regulations and policies as a major deliverable for the business year. The challenge is to quickly streamline pesticides management while balancing competing stakeholder interests.

2.6 AIR QUALITY MANAGEMENT

Program Description

The branch develops methods and undertakes studies designed to understand and characterize air quality problems and collect and analyse air data. SDB provides support for development of air quality abatement targets; develops and applies air quality modelling and instrumentation procedures; and develops and coordinates community-based air improvement projects.

Strategic Issues

2.7 WATERSHED MANAGEMENT

Program Description

SDB develops and promotes effective watershed and ecosystem management. The branch models potential impacts of shoreline development and private septic tank systems; and develops ways of integrating and applying watershed data.

Strategic Issues

2.8 GLOBAL CHANGE AND LONG-RANGE TRANSPORT

Program Description

Evaluate impacts of changing climate, long range transport of pollutants, effects of UV radiation. Evaluate effectiveness of programs to reduce acid gas emmisions. Develop strategies

Strategic Issues

2.9 ASSESSMENT AND DEVELOPMENT OF NEW TECHNOLOGY

Program Description

The branch is involved in the assessment, development and promotion of new technologies for drinking water treatment and distribution, sewage treatment, industrial waste treatment, domestic septic systems.

Strategic Issues

2.10 GROUNDWATER MANAGEMENT

Program Description

SDB maps groundwater flows and contamination, and models hydrological changes. It also manages groundwater data.

Strategic Issues

3.0 MAJOR DELIVERABLES

The focus for 1997/98 is on the effective delivery of core business objectives, improving business efficiency and effective customer service.

( - component of the Ministry's Core Business Performance Measures)

3.1 STANDARDS DEVELOPMENT¹

Air Standards - Resources: PYs - 8.2, DOE - \$73.3K

 Air Standards are being developed for 33 substances this fiscal year². The first group of standards are undergoing consultation with stakeholders. Rationale documents for a second group of 19 air standards are now being completed and extensive stakeholder discussion is anticipated. In addition, an air standard for uranium is being developed. Until stakeholder discussions have been completed it is not possible to estimate the final number of standards that will be promulgated this year;

¹
Canada-wide Standards

A major focus for 1997/98 involves working with CCME partners, as identified in the standards subagreement. Workplans call for delivering 6 CCME priority standards and 2 protocol documents.

²
by fall of 1997:

acetaldehyde	chromium VI	formaldehyde	tetrachloroethylene
arsenic	cyclohexane	methylene chloride	total reduced sulphur
cadmium	1,2-dichloroethane	nickel	trichloroethylene
carbon tetrachloride	1,4-dichlorobenzene	styrene	

by March 1998:

acetonitrile	ethyl ether	methyl isobutyl ketone	<u>In-house</u>
acrylonitrile	hexane	mineral spirits	uranium
ammonia	hydrogen chloride	propylene oxide	
chlorine	isopropyl benzene	toluene	
chloroform	methanol	vinylidene chloride	
ethylbenzene	methyl ethyl ketone	xylene (mixed isomers)	

however the estimate of 7 as identified in the business plan seems reasonable. Refining the adoption process so that it meets the needs of stakeholders is also under development.

Other 97/98 deliverables include harmonized national air standards through staff participation on the Working Group on Air Quality Objectives under CEPA-FPAC for particulate matter (PM10/2.5), carbon monoxide and ozone. Work will be commencing on benzene and mercury. An interim standard for PM10 is also under way.

Surface Water Objectives - Resources: PYs - 3.1, DOE - \$28.8 K

 PWQOs for 16 substances are under development this fiscal year³. The major focus of this effort is the adoption of harmonized national standards. SDB participates on the Water Quality Guidelines Task Group of CCME and contributes to the development of national standards as a CCME partner. In addition, a revised PWQO for phosphorus (Precambrian shield lakes), needed for the MOEE's Lakeshore Development Guideline, is being completed in-house. It is expected that the business plan commitment of 8 PWQO's will be met.

Drinking Water Objectives - Resources: PYs - 1.2, DOE - \$8.8 K

 Ontario Drinking Water Objectives (ODWO) for 8 substances are under development this fiscal year⁴. MOEE will continue to rely upon the adoption of national standards developed by the Federal/Provincial/Territorial Subcommittee on Drinking Water. SDB actively participates on this committee. The major focus of this effort is the adoption of harmonized national standards. It is expected that the business plan commitment of 4 ODWO's will be met.

3

PWQOs under development

<i>arsenic</i>	<i>chlorophenols</i>	<i>PAH</i>
<i>benzene</i>	<i>chromium</i>	<i>fluoride</i>
<i>cadmium</i>	<i>dioxins/furans</i>	<i>hexachlorobutadiene</i>
<i>Carbaryl</i>	<i>inorganic lead</i>	<i>total dissolved solids</i>
<i>chlorobenzenes</i>	<i>N-nitrosodimethylamine</i>	<i>vanadium</i>

4

ODWOS under development

<i>Aldicarb</i>	<i>radionuclides</i>	<i>fluoride</i>
<i>chloramines</i>	<i>Temephos</i>	<i>tetrachloroethylene</i>
<i>cyanide</i>	<i>total dissolved solids</i>	<i>trichloroethylene</i>
<i>1,1-dichloroethylene</i>	<i>Triallate</i>	<i>tritium</i>
<i>Lindane</i>		

Terrestrial Standards - Resources: PYs - 1.4, DOE - \$55.8K

Soil placement criteria and guidance for sampling for use in the Materials Management Policy will be finalized as part of the Regulation Review exercise. A guidance document for sampling and analytical protocols for the utilization of sewage sludge on agricultural soils in Ontario will be completed.

3.2 EXPERT ADVICE**Support for ESSD, Ops Div and external clients - Resources: PYs - 7.9, DOE - \$161.7K**

It is expected that the branch will exceed last years demand of over 100 requests from clients on advice on the toxicology and risks of chemicals in the environment as well as on STP and drinking water technologies. This includes providing science policy and technical advice on operational issues and on major Ministry initiatives including the Smog Plan; Toxics Plan; Regulation Reform - LAMU; Mercury Action Plan; National Sulphur in Fuel Initiative; COA - pesticides; PERT; Hamilton Air Quality Initiative and Metro Toronto Area Air Initiative; Comparative Risk Assessment of Incineration vs Land filling; Surface Water Management Policy; Lakeshore Capacity; Accelerated Reduction/Elimination of Toxics (ARET - federal/provincial/industry initiative); Port Hope Community Health Study; Provincial Biodiversity Strategy.

The branch will provide MOEE regions and other branches with advice such as: representation for ESSD on the Regional Water Resource Supervisors Committee; providing assistance to PDB in the development of the STP Regulation; providing assistance to Approvals Branch to assess new and innovative technologies for STPs, WTPs and stormwater facilities; assisting Waste Reduction Branch in the development and implementation of the Sewage Biosolids and Organic Wastes Application on Agricultural Lands Regulation.

SDB provides advice to external clients on such issues as best management practices regarding agricultural land utilization of STP biosolids; existing and emerging technology; scientific support to existing or new community-based air quality working groups.

Expert Witness & Enforcement Testing

Resources: PY 2.5 DOE: \$13,700

Provide testimony in court proceedings and environmental hearings on the hazards and risks of contaminants to the terrestrial and aquatic environments, and to human health. In addition, the branch is called upon to perform toxicity tests on legal samples, with a corresponding court appearances. Provide expert technical witness in support of IEB and the Ministry legal action related to sewage spills and non-compliance with sewage effluent limits, rural NPS and other aquatic pollution, including atmospheric modelling and monitoring.

EA + SSRA reviews

Resources: PY 4.3 DOE: \$21,900

SDB comments on the hazards and risks of contaminants to terrestrial and aquatic ecosystems, and to human health in support of Environmental Assessments and Site-Specific Risk Assessments in accordance with the Ministry's new Guidelines for Use at Contaminated Sites.

It is expected that the branch will exceed last years demand of over 100 requests from clients on advice on the toxicology and risks of chemicals in the environment.

3.3 TERRESTRIAL EFFECTS ASSESSMENT

Investigations and Emergencies - Resources: PYs - 4.7, DOE - \$42.0K

The branch will conduct approximately 40 terrestrial effects investigations around point sources of air and soil pollution and between 50 and 75 public complaint investigations. Staff will provide immediate emergency response investigation assistance to Operations Division for spills or accidental releases.

Terrestrial Toxicity Studies -Resources: PYs - 1.0, DOE - \$12.9K

A number of toxicity studies that support MOEE standards development and abatement/enforcement will be completed or worked on this year, including, final reports on dose:response studies undertaken to support revisions to soil guidelines (As, Cu, Sb, B, V, Ba) and ethylene in air, studying the effects of dust suppressants used on Ontario roads, and lead migration in soil in the vicinity of a secondary lead smelter.

3.4 AQUATIC TOXICOLOGY

Effluent Audit Testing - Resources: PYs - 5.4, DOE - \$57K

A minimum of 540 acute lethality tests, (using standard test protocols for rainbow trout and *Daphnia magna*) will be performed on audit samples collected by the regions from industrial effluents and reviews the toxicity test results submitted to the ministry under the industrial effluent limits regulations will also be completed. Toxicity testing will be provided for legal samples and analyst witnesses will be provided for court (approx. 30-60 certificates).

Effluent and Sediment Toxicity Assessment - Resources: PYs - 1.7, DOE - \$7.9K

Sediment toxicity assessments/reports will be completed for 10 water bodies. Testing procedures for determining the causes of toxicity from sewage treatment plants will be developed. Technical studies will be concluded on toxicity causes of in CSOs and road runoff.

3.5 PESTICIDES

Admin. Pesticides Act - Resources: PYs - 4.8, DOE - \$28.2K

Administration of the Pesticides Act, preparation of pesticide classifications and EBR Registry notices, issuing Fumigation Permits, developing educational material for licensing, and providing policy guidance to regional staff, and representing MOEE on inter-jurisdictional committees on pesticides.

Pesticides Reform - Resources: PYs - 2.2, DOE - \$38.6K

Four major regulatory reforms are underway involving extensive stakeholder consultation:

Classification - to replace provincial classification with a new national classification system implemented by the federal government .

Licensing - to streamline the pesticide licensing system and upgrade exterminator training requirements.

Housekeeping Amendments - to clarify and modernize sections dealing with fumigations, obsolete pesticides, disposal of empty containers, etc.

Permits - to remove permit requirements for pesticide applications that pose little environmental risk and replace permits with SARs for licensed exterminators.

3.5 AIR QUALITY MANAGEMENT

Characterization of Air Quality	PY:	1.6	DOE:	\$65,000
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SDB characterizes urban air quality and provides data and data interpretation to aid abatement programs and standards setting. The branch also coordinates, the Southern Ontario Oxidants Study (SONTOS) to advance knowledge about ground level ozone

Air Quality Monit. and Mgmt. Policies & Strategies	PY:	1.1	DOE:	\$54,999
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The branch coordinates and develops ESSD strategy for monitoring air toxics; contributes to NOx/VOC Management Plan Science Assessment; coordinates the development of Ontario's Smog Plan and model scenario runs to support its development. SDB also participates in Federal/Industrial/Provincial evaluation of benefits of reducing the sulphur content of fuels.

Site-Specific Air Quality Management	PY:	2.4	DOE:	\$55,000
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SDB conducts source-specific studies to assess regional complaints and abatement problems. The branch will provide support to develop abatement targets and actions to improve air quality in

Hamilton-Wentworth, and will provide scientific support to existing (or new) community based working groups to develop abatement targets and actions to improve air quality in Sault St. Marie.

Air Quality Modelling PY: 1.1 DOE: \$29,999

SDB will continue with developmental work on toxics deposition modelling; work in partnership with Environment Canada to develop a modelling capability for IP and RP; and AERMOD model beta testing.

3.5 WATERSHED MANAGEMENT

Ecosystem-based watershed Mgmt - Resources: 2.2 DOE: \$21,561

SDB encourages locally initiated, community driven ecosystem-based watershed management across the province through documents on: Formulating objectives for management on an ecosystem scale; Valuation for settling management objectives on an ecosystem scale; Predicting the ecological future; Ways to determine success in achieving ecosystem scale management objectives. The branch will also provide decision support systems and integrated database systems for stream assessment and watershed management, methodologies for applying watershed data, pattern recognition, trend analysis and filling in data gaps.

Surface water modelling PY: 1.2 DOE: \$37,978

Water models will be used to link spills and discharge loadings and environmental impacts (water/sediment/biota) by: delineation of impact; derivation of loading limits for new outfalls; design of remedial strategies at contaminated sediment sites; litigation support; dredging impacts; leachate losses.

SDB will also improve existing scientific models relating shoreline residential development to water quality.

Implementation of stormwater policies PY: 0.1 DOE: \$100,000

The branch will participate in the development and enforcement of MOEE policies, programs standards and implementation plans for stormwater and conduct investigations into best stormwater management strategies for sustaining long-term urban development and ecosystem health. Deal with issue of legislative ambiguities with stormwater drainage.

Site-specific Watershed Management PY: 3.0 DOE: \$101,653

SDB will prepare the Grand (Watershed) Strategy; Promotion and Encouragement of Subwatershed Planning; for the Grand Tributaries completion of the MOEE/GRCA Phase III Agreement; assistance with the Development of the GRCA's Total Water Quality Program (a Phosphorus Trading PS/NPS Program); provide MOEE contributions to MNR led Watershed Management Plan for the Madawaska River; and prepare Duffins Creek Management Strategy; develop and apply remote sensing applications; develop compact disk technology for distribution of watershed data. The branch will also deliver MOEE's component of the second phase of the Lake Simcoe Environmental Management Strategy (LSEMS) in collaboration with the Ministries of Natural Resources and Agriculture Food and Rural Affairs and the Lake Simcoe Region Conservation Authority; measure the water quality of Lake Simcoe at 12 locations 12 times; report quantifying trends in nutrient, clarity and algae in lake; measure concentrations of nutrients and contaminants and measure seasonal and annual flow rates inflowing streams and rivers; refine oxygen-phosphorus models.

3.5 GLOBAL CHANGE AND LONG-RANGE TRANSPORT

Effects of Global Change PY: 2.1 DOE: \$60,000

The branch will evaluate long-term meteorological, physical, hydrologic, biological and chemical data collected for Lakes and catchments in Ontario and evaluation of the possibility that changing climate has effected aquatic ecosystems detrimentally.

Long-Range Transport of Pollutants (LRTAP) PY: 3.4 DOE: \$125,000

SDB will evaluate the response of aquatic and terrestrial ecosystems to the decline in sulphur emissions that has occurred and will continue to occur as a result of the Ministry's Countdown '94 programme and concurrent reductions in eastern Canadian and American emissions; maintain a monitoring programme on selected aquatic ecosystems; report on rates of natural replacement of biota in lakes varying in damage; report on changes in crayfish and benthos of Dorset Lakes; develop a new method of assessing future catchment acidification; report on zooplankton of Dorset lakes varying in chemistry; produce models characterizing the normal range of variation in aquatic communities.

The branch will quantify atmospheric inputs of toxic organics and heavy metals into the Great Lakes Basin in fulfilment of requirements under COA and IADN; and publish monitoring data listing and statistics reports; e.g., Volatile organic compound (1996 data), dioxins (1996 data), PAHs (1994 & 1995 data), and toxics deposition into the Great Lakes basin (1995 data).

Interaction of Stressors PY: 0.9 DOE: \$20,000

SDB will evaluate the role of UV-B in controlling the carbon cycle in lakes; linkages between the effects of acid deposition on aquatic ecosystems and evaluate the linkage between climate change, drought and the sulphur cycle in Ontario catchments and the role of changes in UV-B in the production of greenhouse gases.

Mercury Action Plan PY: 1.0 DOE: \$25,000

SDB will develop the rationale for policies and options for control of mercury in the Ontario environment. Assess newly developed mercury chemistry model along with an updated mercury emission inventory perform model simulations.

Assessment of Acid Gas Abatement PY: 0.7 DOE: \$40,000

The branch will monitor and track wet and dry deposition of acid rain related compounds. Fulfilment of federal-provincial agreement on acid rain. Assessment of effectiveness of acid gas abatement programs in Ontario (Countdown Acid Rain), Canada and the US as seen in reduced acid deposition. Publication of monitoring data listing and statistics reports for acid deposition (1995 data).

3.5 ASSESSMENT AND DEVELOPMENT OF NEW TECHNOLOGY

Agricultural Wastewater Treatment

SDB will design and construct a state of the art Lagoon , Grassed Filter Strip, Wetland System for treating agricultural wastewater from milkhouse effluent, barnyard runoff, and manure runoff at Grumble Hill Farms.

Technical Reports PY: 5.0 DOE: \$14,590

The branch will prepare a number of technical reports on: achieving PWQO's at Ontario's Mines; simplification of existing industrial wastewater Control Strategies; manual for soils remediation; applications of geophysics in technologies for fine particulate matter; applications of continuous emissions monitoring; an improved management tool for estimating groundwater contribution to stream flow.

Industrial Wastewater Technologies PY: 0.7 DOE: \$1,330

SDB will assess applications of Oxygen Hydrogen Peroxide and Ozone in treating industrial

waterwater.

Sewage Treatment Plant Technologies PY: 2.1 DOE: \$91,561

SDB will refine, demonstrate and promote "On/off" aeration as an energy efficient operating strategy to reduce acute toxicity caused by ammonia in sewage effluent; evaluate, demonstrate and promote the use of two innovative technologies to remove total phosphorus and ammonia toxicity without the use a metal salt solution; evaluate, demonstrate and promote the application of two innovative technologies to retrofit existing plants to remove ammonia toxicity; establish the design and life-cycle costs of four low cost alternative processes to upgrade Thunder Bay STP from primary to secondary treatment; evaluate alternatives to improve biosolids stabilization process to divert biosolids from incineration and landfills to beneficial re-uses on agricultural lands and acid mine tailings; and define current status and environmental impacts due to septic tank failures and evaluate alternative technologies.

Drinking Water Plant Technologies PY: 2.4 DOE: \$201,000

SDB will demonstrate and promote the Composite Correction Program (CCP) as an effective protocol to optimize drinking water plants to remove Cryptosporidium; evaluate more effective alternatives to conventional filtration treatment of drinking water; reduce THM concentrations in drinking water in 5 drinking water plants by process modifications without compromising disinfection; develop a standardized protocol for to assess full-scale application of membrane technology; develop standardized procedures for evaluating changes in water treatment to reduce the rate of corrosion and release of lead into domestic water supplies; revise and update MOEE Chlorination Bulletin to cover alternative disinfectants and best design and operating procedures; and Evaluate the effectiveness of the use of iodine for pipeline cleaning.

Stormwater Technologies PY: 0.4 DOE: \$53,903

The branch will evaluate, adapt and promote the use of 11 optimization methods, lower cost innovative technologies and pollution prevention practices to ensure that stormwater management facilities can comply with MOEE policies and standards, defer and /or eliminate unnecessary capital expenditures and to sustain long-term urban development and ecosystem health; and evaluate, demonstrate and promote the use of the following technologies: oil/water separators, wetlands, road side ditches, CSO High-Rate treatment, in-lake flow balancing systems.

Air instrumentation and methods development PY: 1.1 DOE: \$15,000

SDB will develop, assess and evaluate instrumentation and methods for use in investigations to understand and characterize air quality problems.

3.5 GROUNDWATER MANAGEMENT

Mapping Groundwater Discharge Zones PY: 0.1 DOE: \$14,015

SDB is developing procedures for mapping groundwater discharge zones.

Groundwater Initiatives PY: 0.8 DOE: \$5,310

SDB will develop an improved management tool for evaluating groundwater contribution to base flow. Update corporate groundwater database

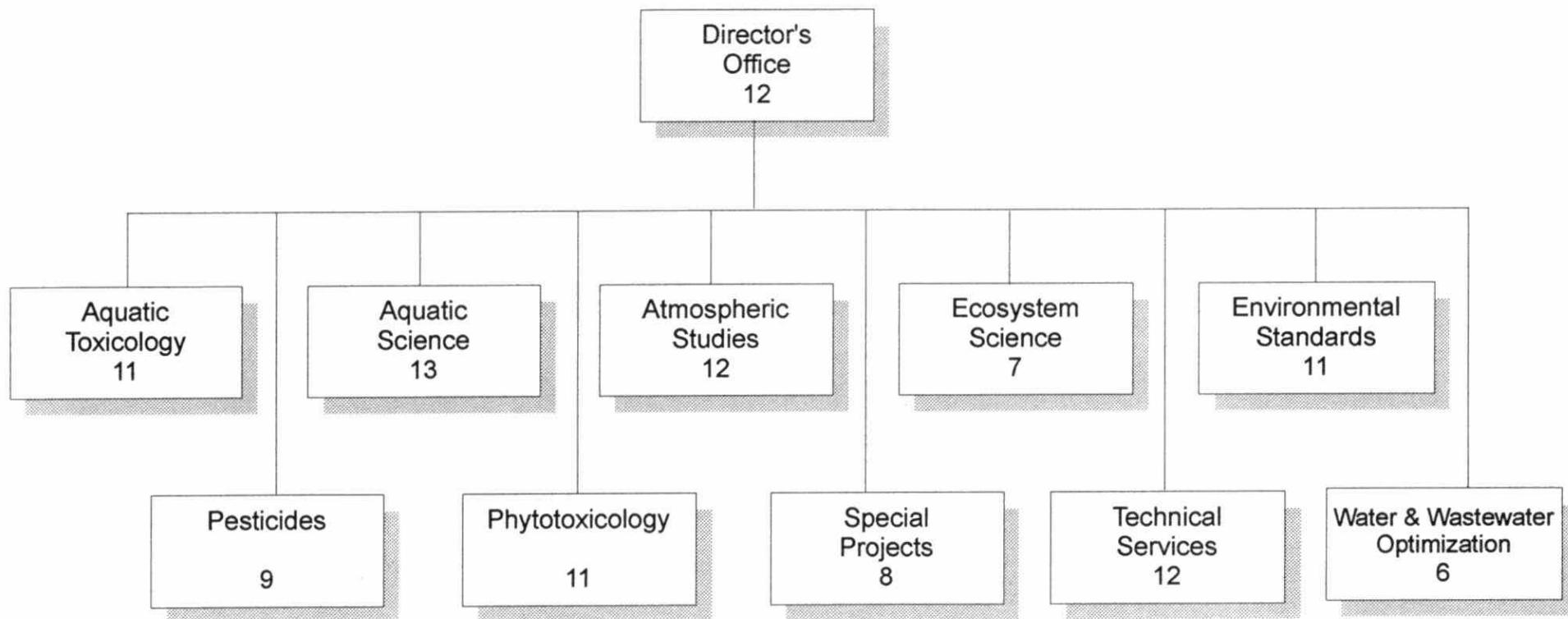
Groundwater field testing PY: 1.1 DOE: \$39,790

Continue geophysical testing for contaminated groundwater plumes or buried waste.

3.6 MANAGEMENT & ADMINISTRATION - Resources: PYs - 12.6 , DOE - \$491 K

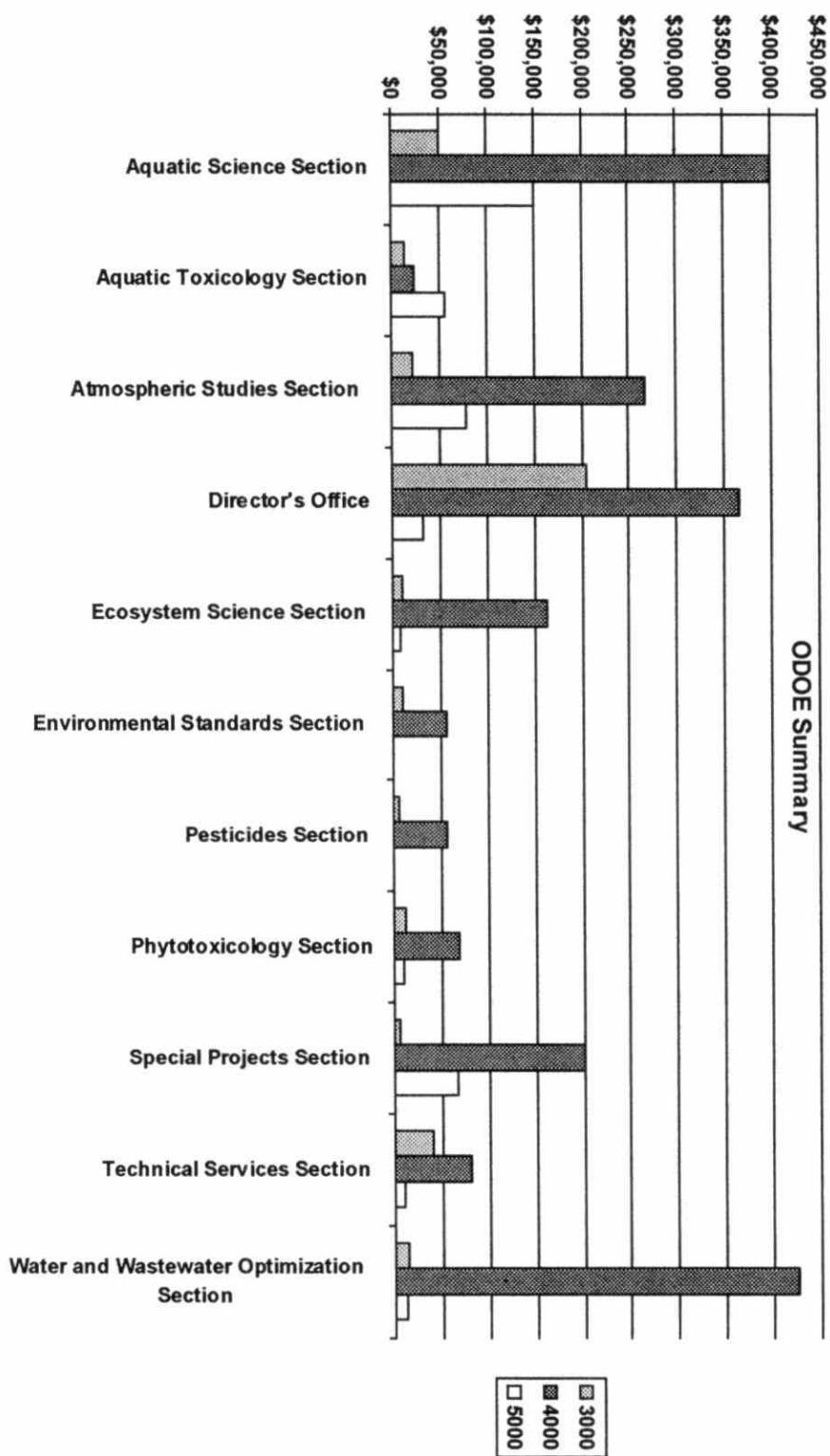
The branch performs day-to-day operations such as: personnel, purchasing, budget, filing, library, phones, supplies, equipment rental, courier services, mail, journal subscription, site maintainance, snow removal, security. SDB operates at four locations including the Etobicoke lab (Aquatic Toxicology), the Dorset Research Centre (Aquatic Sciences) and the Brampton Training Centre (Phytotoxicology).

4.0 BRANCH ORGANIZATION AND RESOURCES



1997
Standards Development Branch Organizational Chart
by Section

112 staff



Standards Development Branch
1997/98 Budget

Aquatic Science

Transp & Comm.

Total 3000

\$50,000
\$40,000
\$30,000
\$20,000
\$10,000
\$0



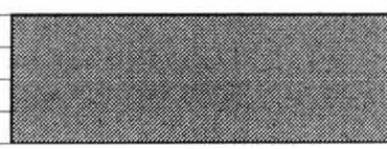
Transp & Comm.

Services

Total 4000

\$400,000
\$400,000

\$500,000
\$400,000
\$300,000
\$200,000
\$100,000
\$0



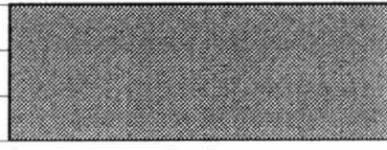
Services

Supplies

Total 5000

\$150,000
\$150,000

\$200,000
\$150,000
\$100,000
\$50,000
\$0

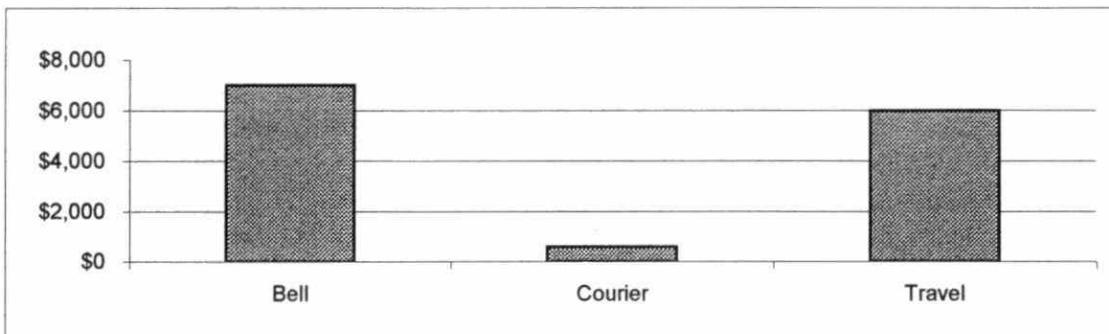


Supplies

Standards Development Branch
1997/98 Budget

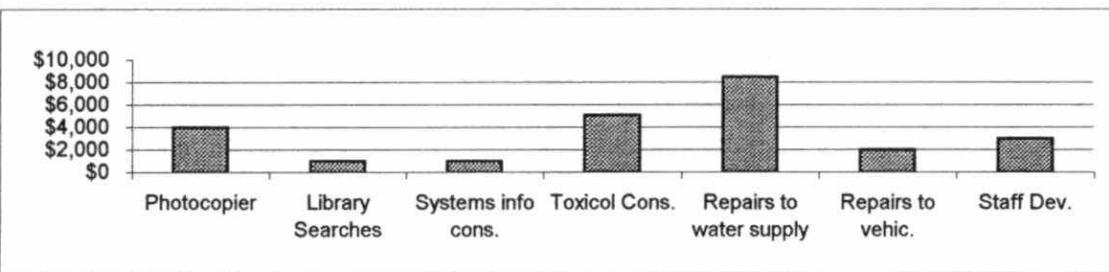
Aquatic Toxicology

Bell	\$7,000
Courier	\$600
Travel	\$6,000
Total 3000	\$13,600



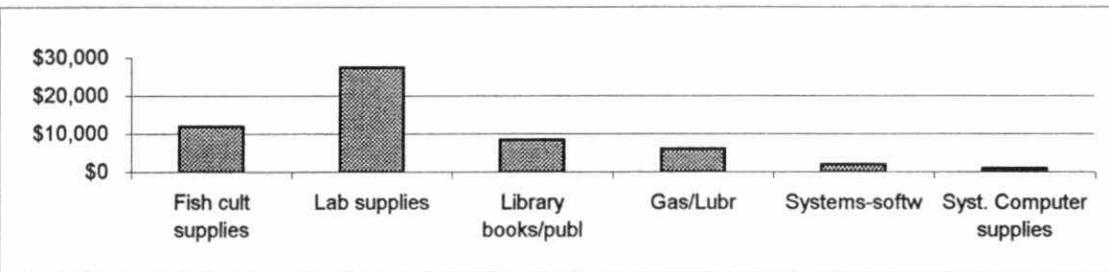
Photocopier	\$4,000
Library Searches	\$1,000
Systems info cons.	\$1,000
Toxicol Cons.	\$5,100
Repairs to water supply	\$8,500
Repairs to vehic.	\$2,000
Staff Dev.	\$3,000

Total 4000



Fish cult supplies	\$12,000
Lab supplies	\$27,400
Library books/publ	\$8,400
Gas/Lubr	\$6,000
Systems-softw	\$2,000
Syst. Computer supplies	\$1,000

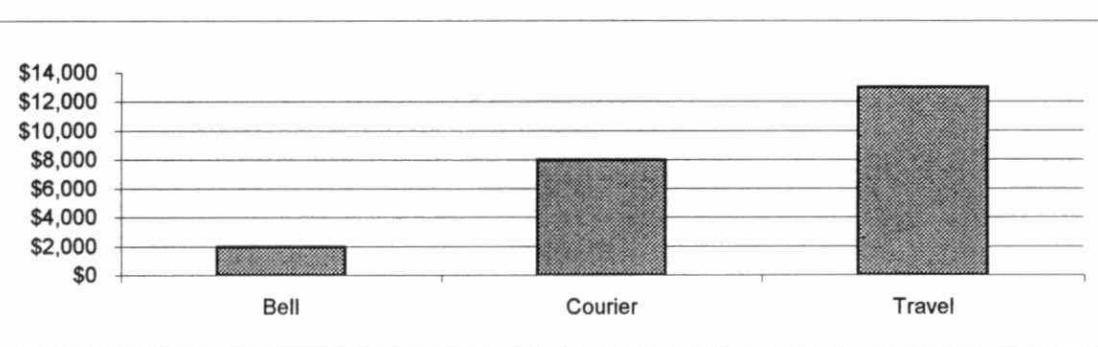
Total 5000



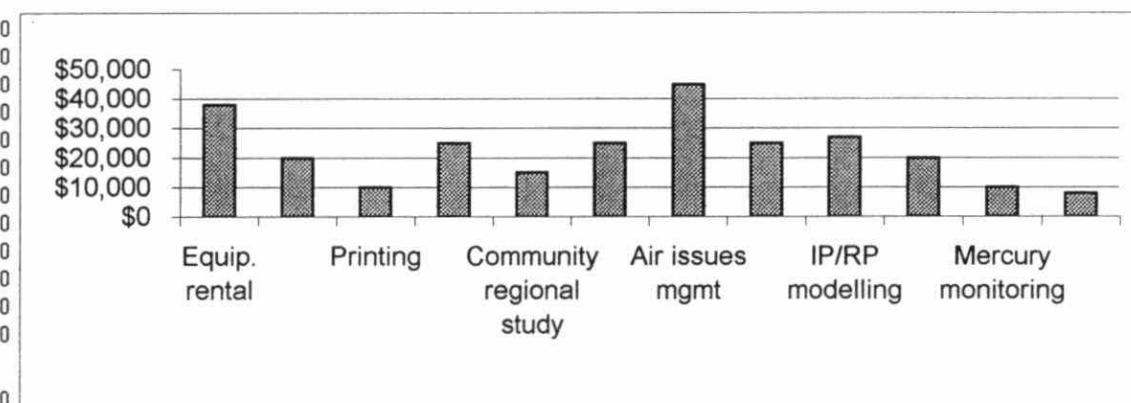
Standards Development Branch
1997/98 Budget

Atmospheric Studies

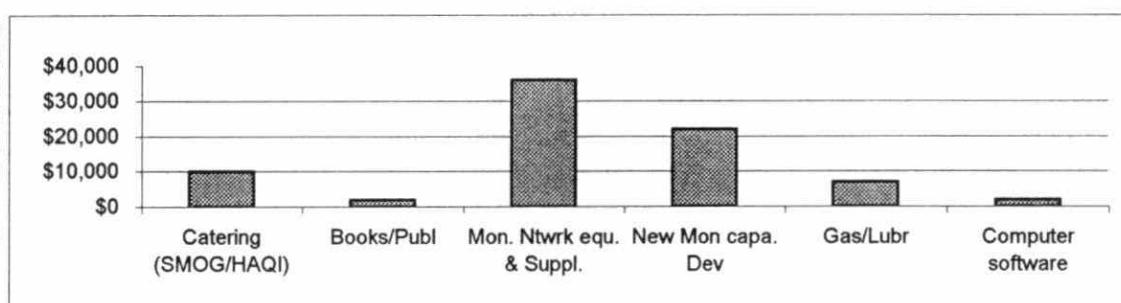
Bell	\$2,000
Courier	\$8,000
Travel	\$13,000
 Total 3000	 \$23,000



Equip. rental	\$38,000
Systems maint. DBS conv	\$20,000
Printing	\$10,000
Support for HAQI	\$25,000
Community regional study	\$15,000
Black fallout opt mtd eval	\$25,000
Air issues mgmt	\$45,000
Depos. Toxics & SONTOS Ass.	\$25,000
IP/RP modelling	\$27,000
Toxics modelling	\$20,000
Mercury monitoring	\$10,000
Staff training	\$8,000
 Total 4000	 \$268,000



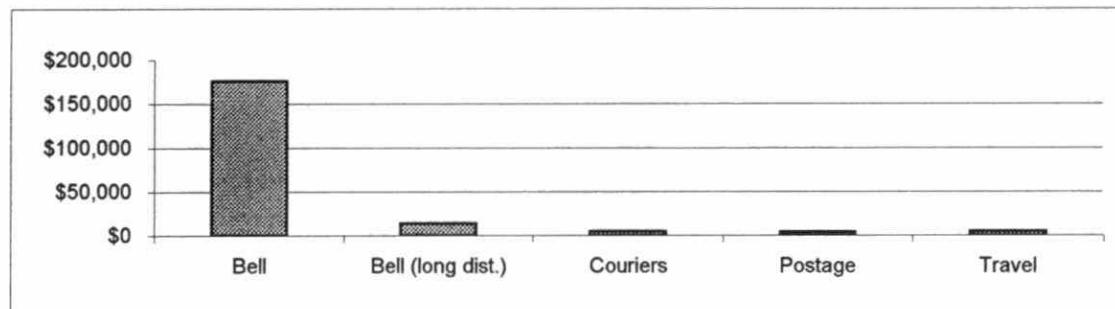
Catering (SMOG/HAQI)	\$10,000
Books/Publ	\$2,000
Mon. Ntwrk equ. & Suppl.	\$36,000
New Mon capa. Dev	\$22,000
Gas/Lubr	\$7,000
Computer software	\$2,000
 Total 5000	 \$79,000



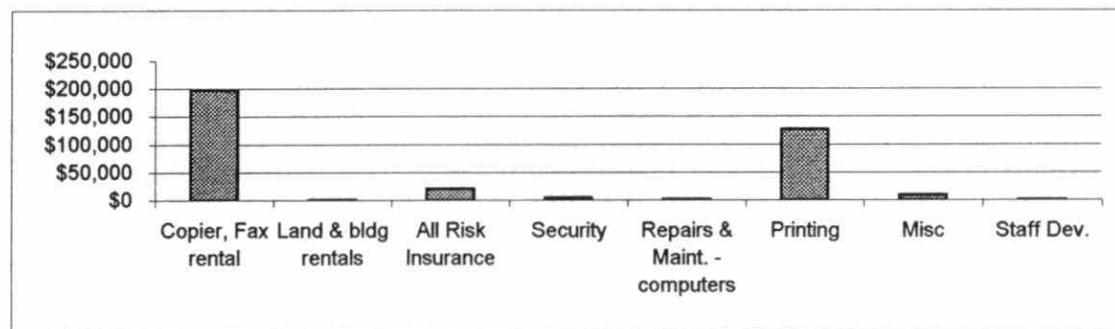
Standards Development Branch
1997/98 Budget

Director's Office

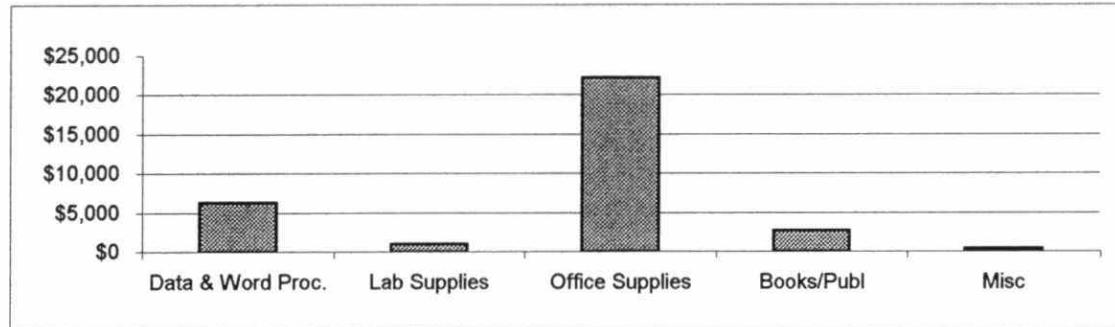
Bell	\$176,380
Bell (long dist.)	\$13,898
Couriers	\$5,000
Postage	\$4,482
Travel	\$5,000
 Total 3000	 \$204,760



Copier, Fax rental	\$198,698
Land & bldg rentals	\$890
All Risk Insurance	\$20,760
Security	\$5,048
Repairs & Maint. - computers	\$2,302
Printing	\$127,142
Misc	\$9,578
Staff Dev.	\$1,242
 Total 4000	 \$365,660



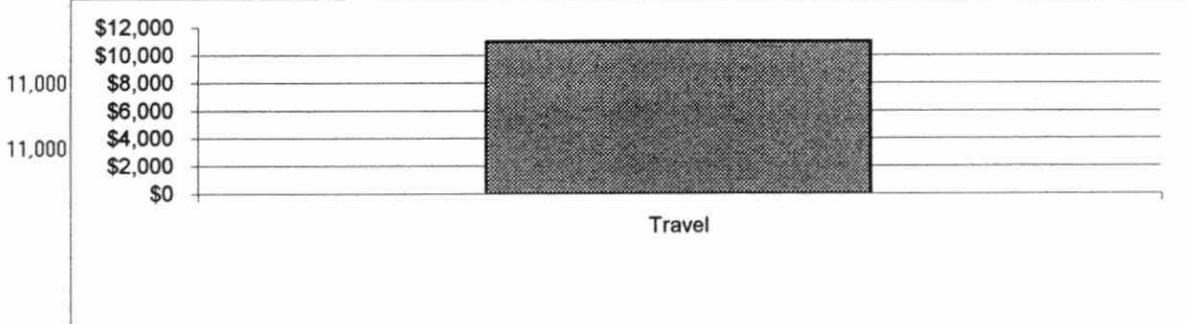
Data & Word Proc.	\$6,312
Lab Supplies	\$1,006
Office Supplies	\$22,182
Books/Publ	\$2,692
Misc	\$430
 Total 5000	 \$32,622



Standards Development Branch
1997/98 Budget

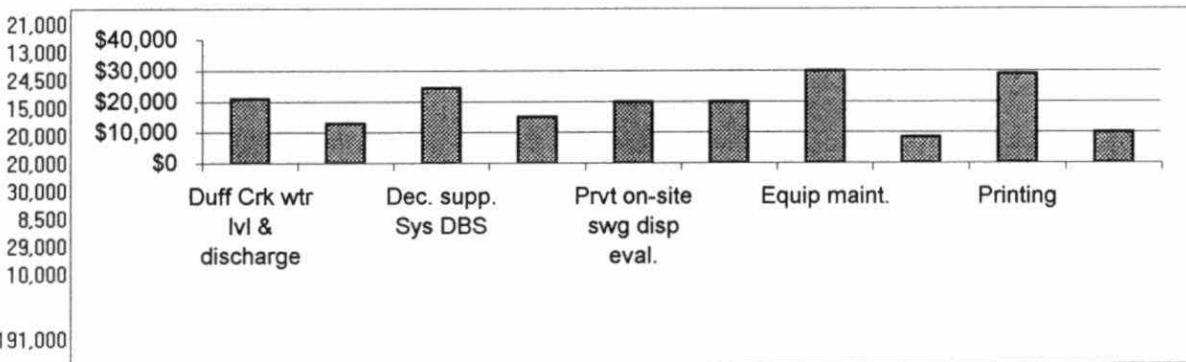
Ecosystem Science Section

Travel



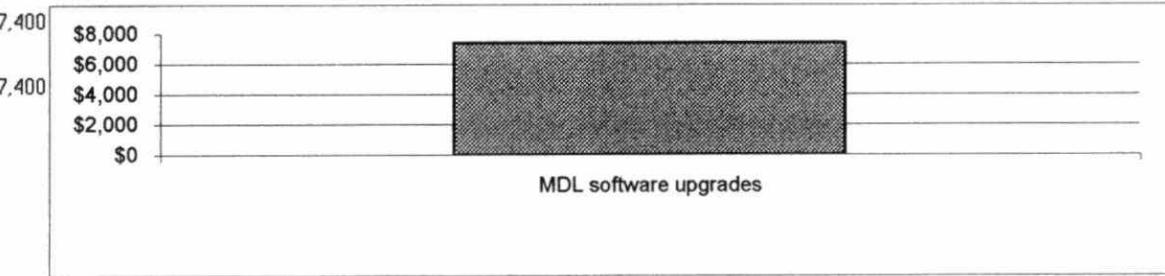
Duff Crk wtr M & discharge
Hydro & reg geo Oak Ridges Mor
Dec. supp. Sys DBS
MOEE/GRCA Phase III agr
Prvt on-site swg disp eval.
Art wetland Grumble HF
Equip maint.
Vehicle repairs
Printing
Staff Devel

Total 4000



MDL software upgrades

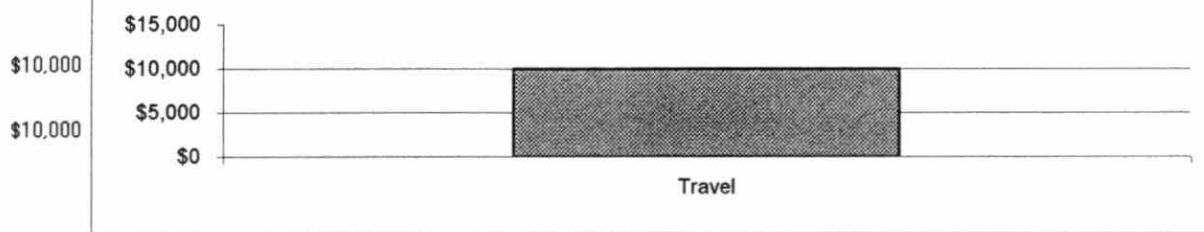
Total 4000



Standards Development Branch
1997/98 Budget

Environmental Standards

Travel

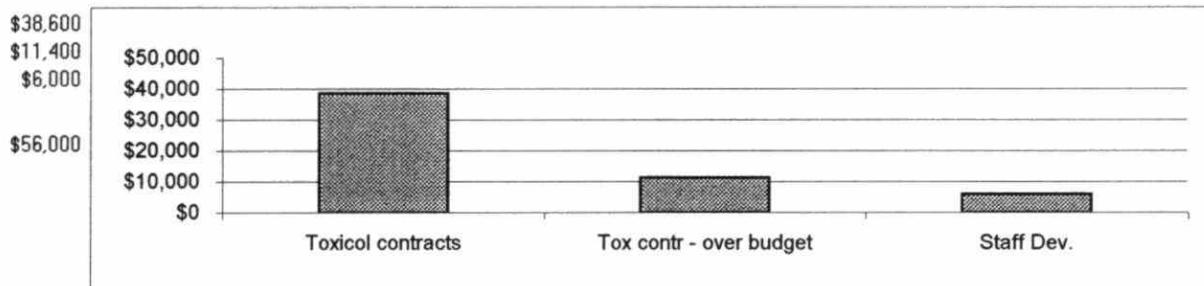


Toxicol contracts

Tox contr - over budget

Staff Dev.

Total 4000

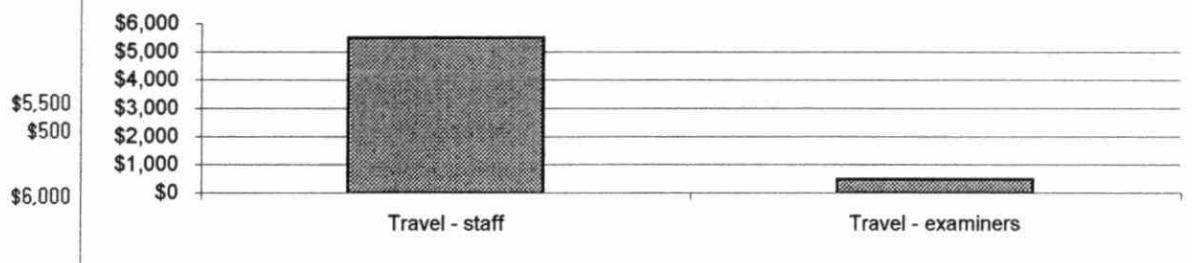


Standards Development Branch
1997/98 Budget

Pesticides

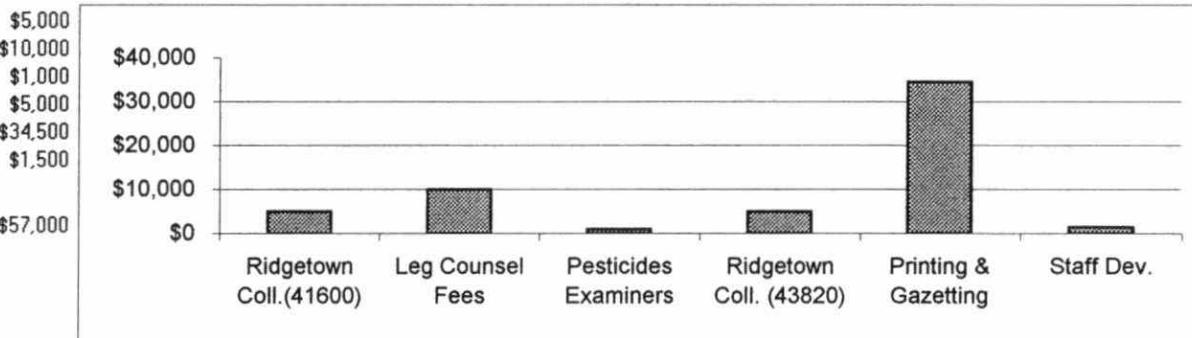
Travel - staff
Travel - examiners

Total 3000



Ridgetown Coll.(41600)
Leg Counsel Fees
Pesticides Examiners
Ridgetown Coll. (43820)
Printing & Gazzetting
Staff Dev.

Total 4000

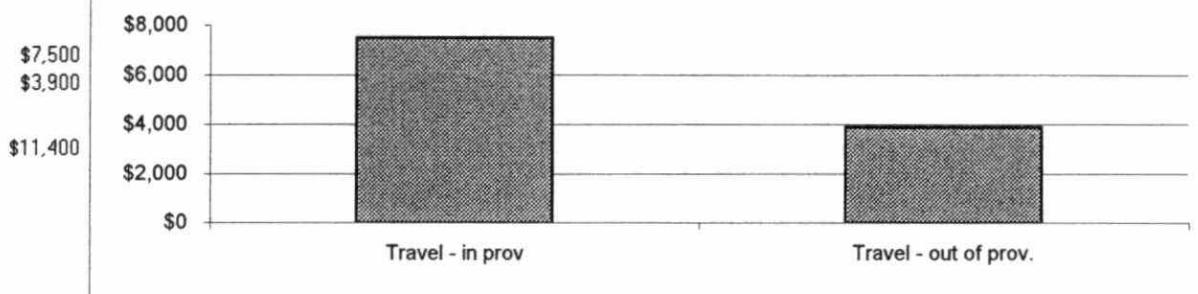


Standards Development Branch
1997/98 Budget

Phytotoxicology

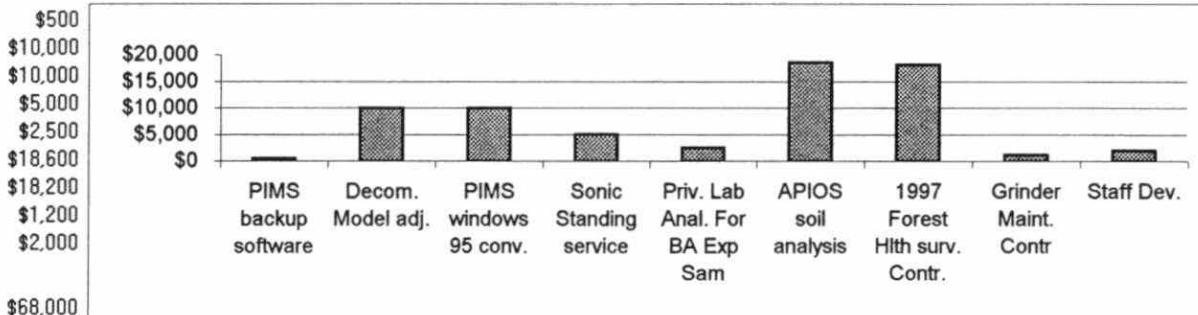
Travel - in prov
Travel - out of prov.

Total 3000



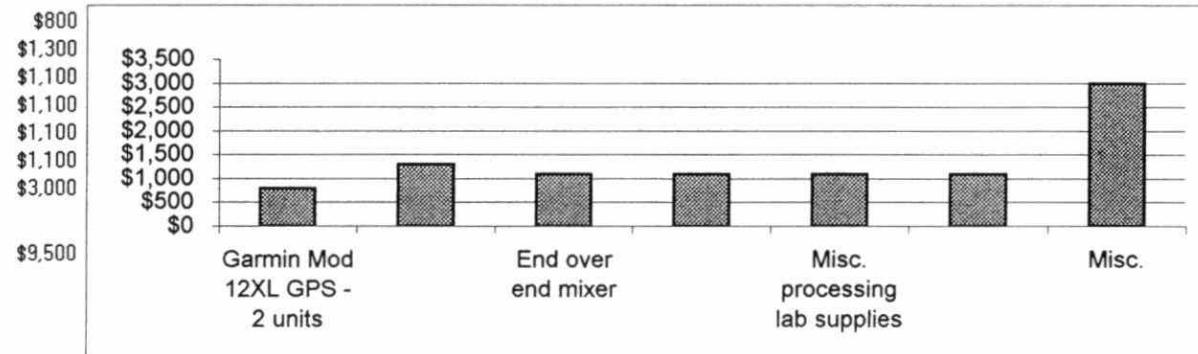
PIMS backup software
Decom. Model adj.
PIMS windows 95 conv.
Sonic Standing service
Priv. Lab Anal. For BA Exp Sam
APIOS soil analysis
1997 Forest Hlth surv. Contr.
Grinder Maint. Contr
Staff Dev.

Total 4000



Garmin Mod 12XL GPS - 2 units
Gamma Scint
End over end mixer
Misc. Greenhouse supplies
Misc. processing lab supplies
Investig./field supplies
Misc.

Total 5000



Standards Development Branch
1997/98 Budget

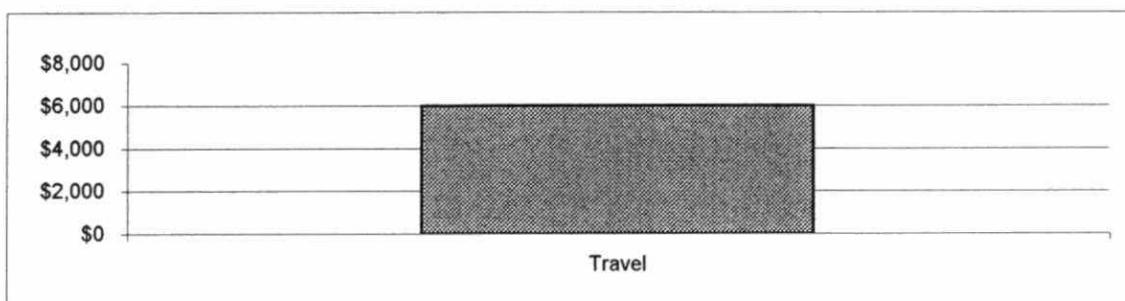
Special Projects

Travel

\$6,000

Total 3000

\$6,000



Library DBS

\$10,000

OASIS

\$7,000

Softprobe

\$42,000

Risk Mgmt air stand.

\$125,000

Harris Adacom Inc.

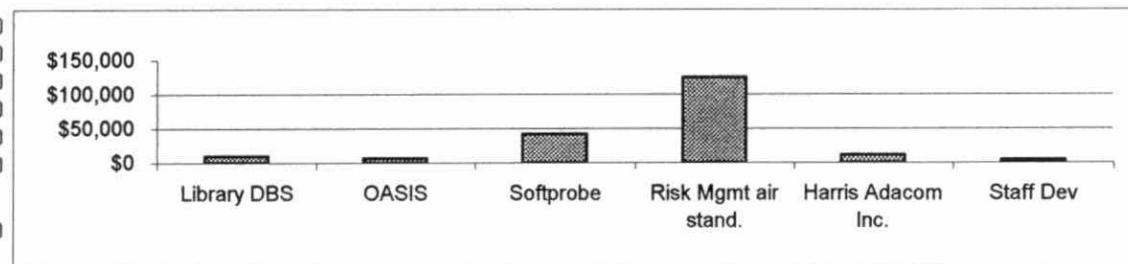
\$12,000

Staff Dev

\$5,000

Total 4000

\$201,000



Books/Publ

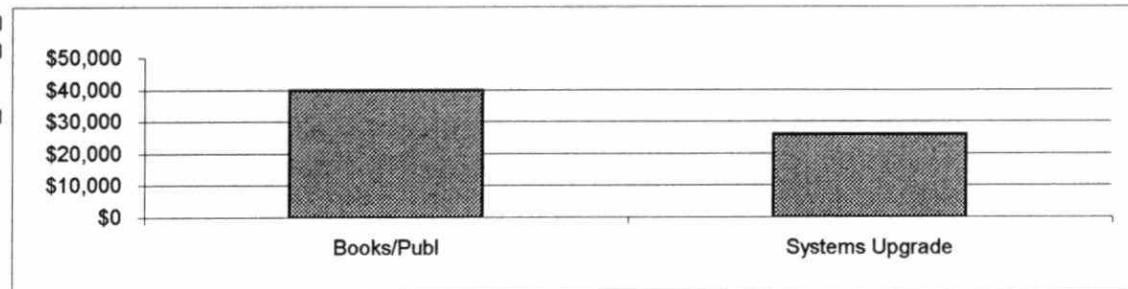
\$40,000

Systems Upgrade

\$26,000

Total 5000

\$66,000



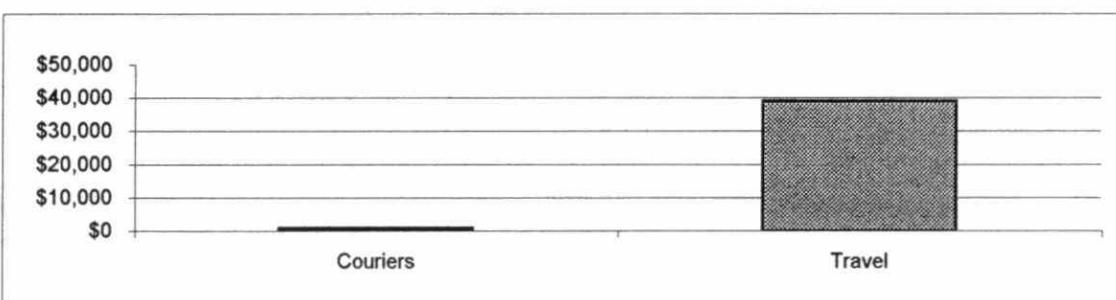


Standards Development Branch
1997/98 Budget

Technical Services

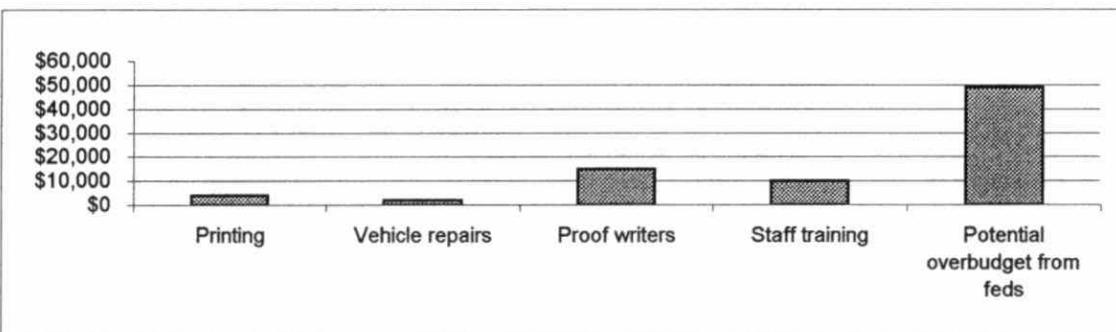
Couriers \$1,000
Travel \$39,000

Total 3000 \$40,000



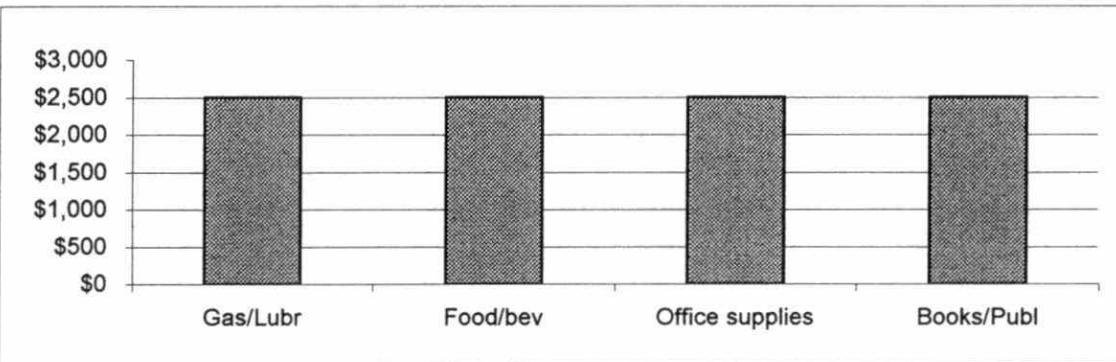
Printing \$4,000
Vehicle repairs \$2,000
Proof writers \$15,000
Staff training \$10,000
Potential overbudget from feds \$49,000

Total 4000 \$80,000



Gas/Lubr \$2,500
Food/bev \$2,500
Office supplies \$2,500
Books/Publ \$2,500

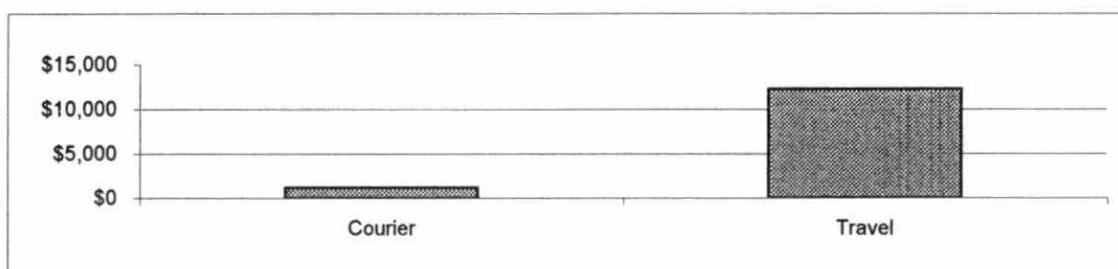
Total 5000 \$10,000



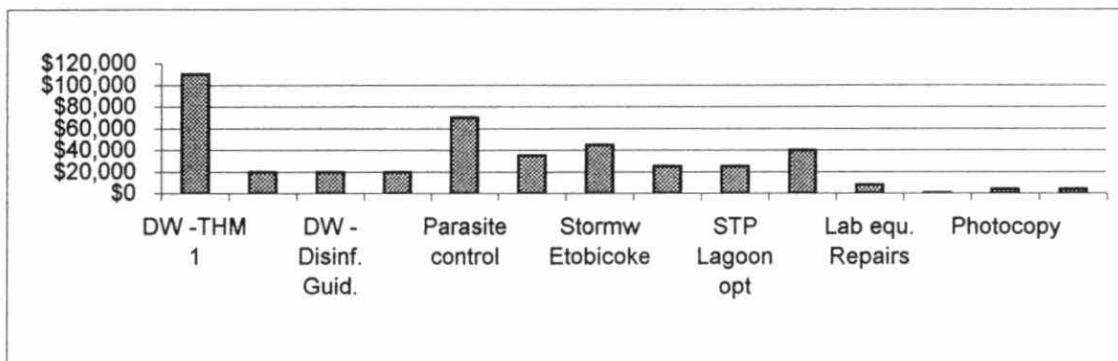
Standards Development Branch
1997/98 Budget

Water and Wastewater Optimization

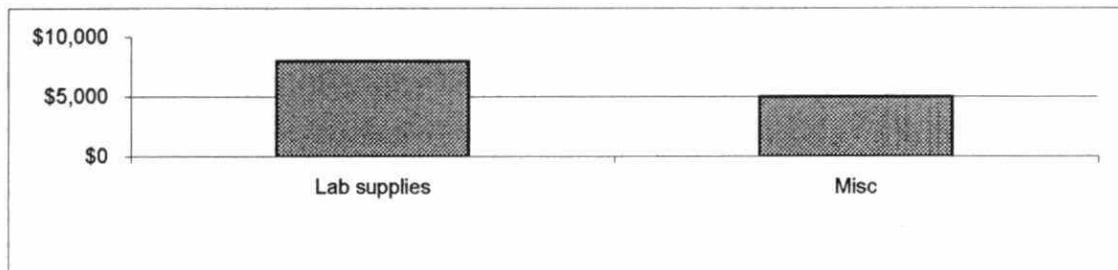
Courier	\$1,200
Travel	\$12,300
Total 3000	\$13,500



DW -THM 1	\$110,000
DW -THM 2	\$20,000
DW - Disinf. Guid.	\$20,000
STP - Onsite sewage systems	\$20,000
Parasite control	\$70,000
Stormw parts	\$35,000
Stormw Etobicoke	\$45,000
STP Seq Bt react.	\$25,000
STP Lagoon opt	\$25,000
STP - Biosolids guid.	\$40,000
Lab equ. Repairs	\$8,000
Printing	\$500
Photocopy	\$4,000
Misc	\$4,000



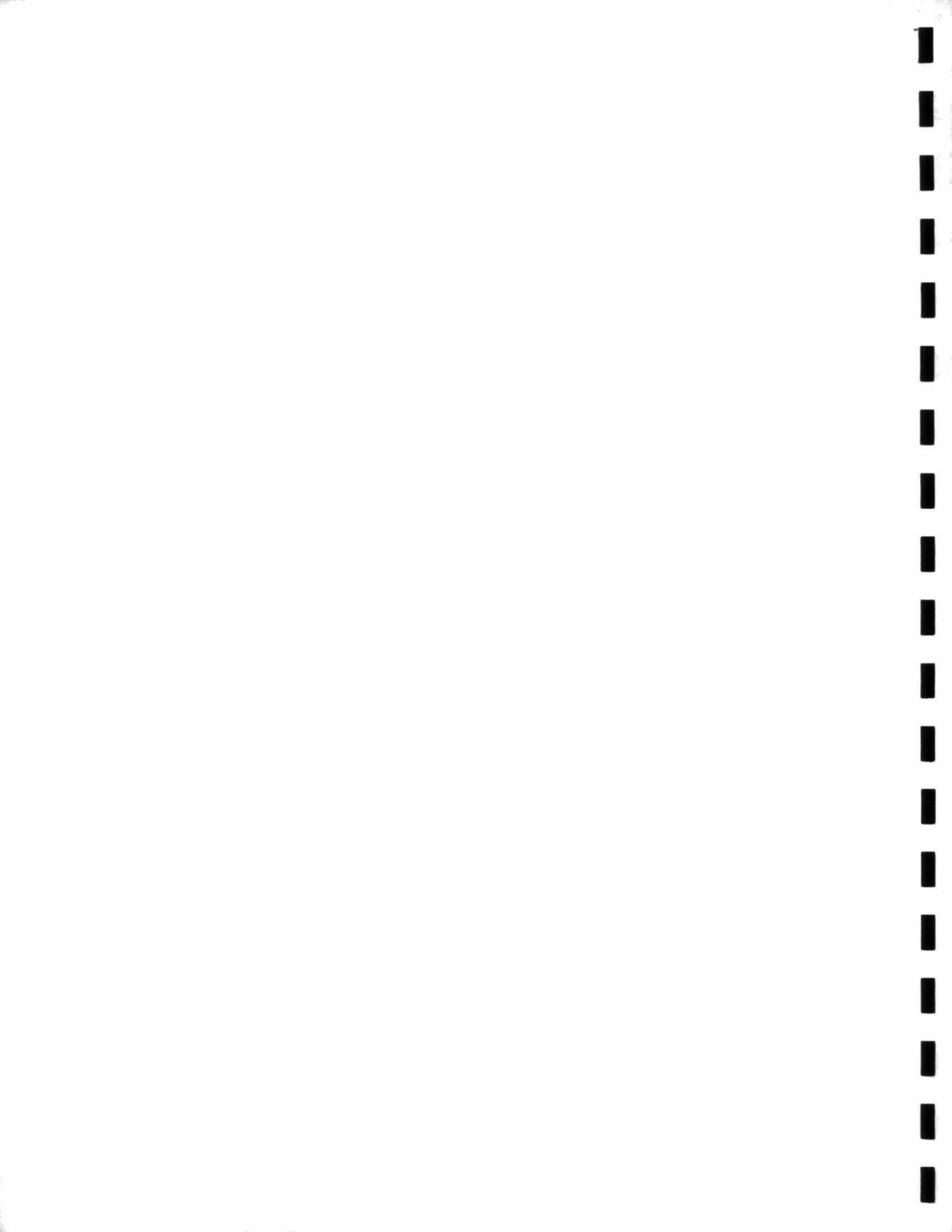
Total 4000	\$426,500
Lab supplies	\$8,000
Misc	\$5,000



APPENDIX A

SDB Section Work Plans and Section Strategic Framework

- i) Aquatic Sciences Work Plan and Strategic Framework
- ii) Aquatic Toxicology Work Plan and Strategic Framework
- iii) Atmospheric Studies Work Plan and Strategic Framework
- iv) Environmental Standards Work Plan and Strategic Framework
- v) Ecosystem Sciences Work Plan and Strategic Framework
- vi) Phytotoxicology Work Plan and Strategic Framework
- vii) Pesticides Work Plan and Strategic Framework
- viii) Technical Services Plan and Strategic Framework
- ix) Water and Wastewater Optimization Work Plan and Strategic Framework
- x) Director's Office Work Plan



STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Director's Office

Business Plan Category	Project	Description	Products	Staffing	FTE
NA	Administration	Administration	Branch day-to-day operation , personnel, purchasing, budget, filing, library, phones, supplies, equipment rental, courier services, mail, journal subscription, site maintainance, security etc. SDB operates at four locations including the Etobicoke lab (Aquatic Toxicology), the Dorset Research Centre (Aquatic Sciences) and the Brampton Training Centre (Phytotoxicology).	R. DiClementi C. Junta E. Leclerc S. Pirbhai Vacancy A. Chan S. Kryzyszton V. Headley G. Jones E. Lacson	0.80 1.00 1.00 0.95 1.00 1.00 1.00 1.00 1.00 1.00 1.00 Total: 9.75

Project ODOE: \$331,300

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Aquatic Toxicology Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Ecosystem Health/Multimedia	Aquatic Toxicology	Effluent and Sediment Toxicity Assessment	Sediment toxicity assessments/reports will be completed for 10 water bodies. Testing procedures for determining the causes of toxicity from sewage treatment plants will be developed. Technical studies will be concluded on toxicity causes of in CSOs and road runoff.	S. Abernethy D. Bedard D. Rokosh	0.50 0.80 0.40
					Total: 1.70
				Project ODOE:	\$7,900
Clean Water, Ecosystem Health/Multimedia	Aquatic Toxicology	Effluent Audit Testing	A minimum of 540 acute lethality tests, (using standard test protocols for rainbow trout and Daphnia magna) will be performed on audit samples collected by the regions from industrial effluents and reviews the toxicity test results submitted to the ministry under the industrial effluent limits regulations will also be completed. Toxicity testing will be provided for legal samples and analyst witnesses will be provided for court (approx. 30-60 certificates).	R. Chong-Kit A. Collins R. Daust J. Lee M. Mueller C. Neville D. Poirier	1.00 1.00 1.00 0.65 0.90 0.10 0.75
					Total: 5.40
				Project ODOE:	\$57,000



STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Aquatic Toxicology Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Expert Advice	Expert Witness & Enforcement Testing	Provide testimony in court proceedings and environmental hearings on the hazards and risks of contaminants to the terrestrial and aquatic environments, and to human health. In addition, the branch is called upon to perform toxicity tests on legal samples, with a corresponding court appearances. Provide expert technical witness in support of IEB and the Ministry legal action related to sewage spills and non-compliance with sewage effluent limits, rural NPS and other aquatic pollution, including atmospheric modelling and monitoring.	S. Abernethy D. Bedard J. Lee M. Mueller C. Neville D. Poirier D. Rokosh	0.40 0.10 0.30 0.10 0.10 0.15 0.40

Total: 1.56

Project ODOE: \$7,900

Clean Water, Ecosystem Health/Multimedia	Standard Development	Surface Water Standards	PWQOs for 16 substances are under development this fiscal year. The major focus of this effort is the adoption of harmonized national standards. SDB participates on the Water Quality Guidelines Task Group of CCME and contributes to the development of national standards as a CCME partner. In addition, a revised PWQO for phosphorus (Precambrian shield lakes), needed for the MOEE's Lakeshore Development Guideline, is being completed in-house. It is expected that the business plan commitment of 8 PWQO's will be met.	S. Abernethy D. Bedard J. Lee C. Neville D. Poirier D. Rokosh	0.10 0.10 0.05 0.80 0.10 0.20
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Total: 1.35

Project ODOE: \$15,000



Aquatic Toxicology Section Strategic Framework

Guiding Statement

The Aquatic Toxicology Section (ATS) section provides: cost-effective aquatic toxicity testing service for the ministry as an audit of industry self-monitoring and for assessment of contaminated sediments; development of surface water quality and sediment quality objectives to assist MOEE in the management of threats to surface water and sediments; and toxicological advice for the courts and for use in approvals.

Strategic Framework

The MISA coordinators in the regions aim to audit sample all regulated industries at least once per year for toxicity. The ATS works with the regions and LSB to create a schedule of testing that takes into account the limited capacity of the toxicity lab. This schedule is continually updated during the year through consultation with staff doing the sampling. The objective is to keep the flow of samples as close to the lab's capacity at all times as possible. This year, with the additional capabilities that are possible through the Oracle database, we will be able to prepare tracking reports that will provide information on turnaround times. Also, new this year, the industrial self-monitored sublethal data required by the effluent limits regulations. The regions send this data to the ATS. A summary report will be produced for the ministry. With the success of MISA, most of the effluents in the province no longer kill aquatic life. Consequently, the sublethal measurements are becoming much more important in determining effects of effluents on aquatic life. The most toxic effluents to be dealt with are those from sewage treatment plants. The ATS is focusing more effort on assisting with regulation development and management for that sector.

The ATS has evaluated the potential for alternative delivery of products. For laboratory testing, efficiencies can be obtained by improved data management. ATS has been transferring the data management functions to an Oracle database and should complete the process in 1997 with direct entry of data from the bench sheets using electronic forms. Several years ago, the ATS had some of the audit testing performed at external laboratories at Lakehead University and later at Trent University. In the final analysis, audit testing at universities labs was not viable as the university labs needed the flexibility to obtain work from other sources. After assistance from MOEE in setting up their labs, these universities have moved on to other projects. ATS is not able to perform these audits at commercial labs because MOEE must insist that the lab devote its entire capacity to the ministry's tests, precluding the possibility that the commercial lab might end up auditing its own results. This is not a viable option for commercial labs.

Many of the existing and planned interim water quality objectives lack of critical data for full objective development. The ATS is capable of filling in some of these data gaps, providing the ministry with more complete and useful objectives than are can be derived from existing data in the literature. The Water Quality Guidelines Task Group of CCME is a potential client for this service.

The ATS remains involved with new toxicity testing procedures through federal/provincial committees, but is not involved the development of new toxicity tests procedures internally. An exception would be where modifications to, or simplification of existing tests could result in resource savings.

The ATS has a strong emphasis on the quality of its data and its final products. We have designated a QA/QC person and have been preparing and revising our standard operation procedures and will be investigating certification that is now available for biological tests through the CAEAL.

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY

Environmental Standards Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Air, Ecosystem Health/Multimedia	Standard Development	Air Standards	<p>Air Standards are being developed for 33 substances this fiscal year. The first group of standards are undergoing consultation with stakeholders. Rationale documents for a second group of 19 air standards are now being completed and extensive stakeholder discussion is anticipated. In addition, an air standard for uranium is being developed. Until stakeholder discussions have been completed it is not possible to estimate the final number of standards that will be promulgated this year; however the estimate of 7 as identified in the business plan seems reasonable. Refining the adoption process so that it meets the needs of stakeholders is also under development. The branch will compile sampling methods, analytical methods, and ambient air concentrations in support of these standards.</p> <p>Other 97/98 deliverables include harmonized national air standards through staff participation on the Working Group on Air Quality Objectives under CEPA-FPAC for particulate matter (PM10/2.5), carbon monoxide and ozone. Work will be commencing on benzene and mercury. An interim standard for PM10 is also under way.</p>	<p>A. Chiu S. Fleming B. Leece A. Li-Muller P. Muller</p> <p>Total: 3.15</p>	<p>1.00 0.70 0.50 0.25 0.70</p>

Project ODOE: \$10,000



STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Environmental Standards Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water	Standard Development	Drinking Water Standards	Ontario Drinking Water Objectives (ODWO) for 8 substances are under development this fiscal year. MOEE will continue to rely upon the adoption of national standards developed by the Federal/Provincial/Territorial Subcommittee on Drinking Water. SDB actively participates on this committee. The major focus of this effort is the adoption of harmonized national standards. It is expected that the business plan commitment of 4 ODWO's will be met.	G. Jenkins - . Vacancy	0.80 0.30 Total: 1.10
				Project ODOE:	\$5,000
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Expert Advice	EA + SSRA reviews	Provide input and comments on the hazards and risks of contaminants to terrestrial and aquatic ecosystems, and to human health in support of Environmental Assessments and Site-Specific Risk Assessments in accordance with the Ministry's new Guidelines for Use at Contaminated Sites.	B. Birmingham S. Fleming B. Leece A. Li-Muller P. Muller D. Spry - . Vacancy	0.40 0.15 0.30 0.55 0.30 0.05 0.30 Total: 2.05
				Project ODOE:	\$200

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY

Environmental Standards Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Expert Advice	Expert Witness & Enforcement Testing	Provide testimony in court proceedings and environmental hearings on the hazards and risks of contaminants to the terrestrial and aquatic environments, and to human health.	B. Birmingham G. Jenkins B. Leece A. Li-Muller -. Vacancy	0.30 0.10 0.10 0.10 0.10
					Total: 0.71
					Project ODOE: \$2,000
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Expert Advice	Support for ESSD, Ops Div and external clients	It is expected that the branch will exceed last years demand of over 100 requests from clients on advice on the toxicology and risks of chemicals in the environment. This includes providing science policy and technical advice on operational issues and on major Ministry initiatives including the Smog Plan; Toxics Plan; Regulation Reform - LAMU; Mercury Action Plan; National Sulphur in Fuel Initiative; COA - pesticides; PERT; Hamilton Air Quality Initiative and Metro Toronto Area Air Initiative; Comparative Risk Assessment of Incineration vs Land filling; Surface Water Management Policy; Lakeshore Capacity; Accelerated Reduction/Elimination of Toxics (ARET - federal/provincial/industry initiative); Port Hope Community Health Study.	B. Birmingham S. Fleming G. Jenkins B. Leece A. Li-Muller G. Rutherford D. Spry -. Vacancy	0.30 0.15 0.10 0.10 0.10 0.25 0.05 0.30
					Total: 1.36
					Project ODOE: \$26,400

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Environmental Standards Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Ecosystem Health/Multimedia	Standard Development	Surface Water Standards	PWQOs for 16 substances are under development this fiscal year. The major focus of this effort is the adoption of harmonized national standards. SDB participates on the Water Quality Guidelines Task Group of CCME and contributes to the development of national standards as a CCME partner. In addition, a revised PWQO for phosphorus (Precambrian shield lakes), needed for the MOEE's Lakeshore Development Guideline, is being completed in-house. It is expected that the business plan commitment of 8 PWQO's will be met.	G. Rutherford D. Spry	0.75 0.90 Total: 1.65
Project ODOE: \$10,000					



STRATEGIC FRAMEWORK FOR PROGRAMS

1. Aquatic Quality Criteria

Alternative Delivery

PWQOs are being developed both through CCME and in-house as resources permit. CCME guidelines may be adopted by MOEE.

Sediment and tissue residue guidelines are also going to be developed by CCME in 1997-99, and MOEE will nominate substances of national interest for these guideline development processes. These guidelines may also be adopted by MOEE.

MOEE (SDB) is a participant in the CCME national guidelines development processes.

Effective Client Services and Priority Setting

A coordinating structure is to be established between SDB and EMRB to ensure that (a) sufficient capability exists for monitoring substances for which criteria are being developed, and (b) criteria are developed for substances which warrant concern based on monitoring information.

Substances deemed to be of national importance are being nominated to CCME as candidates for guideline development.

2. Drinking Water Objectives

Alternative Delivery

The great majority of ODWOs are direct adoptions of Canadian Drinking Water Quality Guidelines (CDWGs) developed by the Federal-Provincial-Territorial Drinking Water Subcommittee (DWS) and approved by the national Committee on Environmental and Occupational Health (CEOH). Where a drinking water contaminant is of particular importance in Ontario, MOEE may request that the DWS develop a CDWG for it; alternatively, MOEE may develop an Ontario objective in-house.

Effective Client Services and Priority Setting

In emergencies, where an ODWO does not exist for a substance of concern, an interim guideline (advisory) may be provided by Health Canada through a request from MOEE's DWS representative.

Priorities for CDWG development are set by the DWS.

3. Air Standards Development

Alternative Delivery

Substantial components of the uranium air standard rationale have been done through an external consultant, e.g. updated literature review, hazard identification, exposure characterization and risk characterization. The final steps, risk assessment and risk management, will be conducted in-house. The result is a more appropriate and efficient allocation of resources.

Effective Client Services

The uranium air standard is being developed in direct response to the needs of Operations Division, specifically to address a problem of particular significance in Port Hope. It is linked to SDB's participation, in a technical advisory capacity, on the steering committee for Port Hope's community health study.

Managing Stakeholder Relations

As mentioned above, a senior toxicologist from SDB serves as a technical advisor (on uranium toxicology) to the Port Hope community health study steering committee.

4. Expert Advice

Alternative Delivery

The requirement for third-party review of risk assessments and decommissioning plans proposed by proponents has reduced to some extent the amount of staff resources needed to review and comment on such documents, and has decreased the turnaround time for comment from SDB.

Effective Client Services and Priority Setting

Approximately 60% of the requests for expert advice received annually by SDB originate from Operations Division, including Regional Offices, District Offices, Approvals Branch, Environmental Assessment Branch and the Investigations & Enforcement Branch. SDB has a coordination system in place to ensure that these requests are addressed by the most appropriate staff, in a timely manner. Priority tends to be given to requests for toxicological support for investigations, hearings and prosecutions, often involving appearances by staff as expert witnesses for the Crown.

Managing Stakeholder Relations

SDB's Expert Advice Tracking System and Expert Advice Coordinator ensure that requests are addressed by the most appropriate staff in a timely manner, and that responses to those requests are tracked for future reference.

Where warranted and upon request, staff attend or participate in public meetings, appeal hearings or court to provide expert advice or explain matters of importance to human or environmental health.

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Pesticides Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Ecosystem Health/Multimedia	Pesticides	Admin. Pesticides Act	Administer the Pesticides Act through preparation of pesticide classifications and EBR Registry notices, issuing Fumigation Permits, developing educational material for licensing, and providing policy guidance to regional staff, and representing MOEE on inter-jurisdictional committees on pesticides.	N. Bazinet G. Cutten T. Fletcher Vacancy 1 Vacancy 2 vacancy (LR) V. vanWassena	0.80 0.30 0.45 1.00 1.00 0.80 0.40

Total: 4.75

Project ODOE: \$24,400

Ecosystem Health/Multimedia	Pesticides	Pesticides Reform	Coordinate four major regulatory reforms are underway involving extensive stakeholder consultation: Classification - to replace provincial classification with a new national classification system implemented by the federal government ; Licensing - to streamline the pesticide licensing system and upgrade exterminator training requirements; Housekeeping Amendments - to clarify and modernize sections dealing with fumigations, obsolete pesticides, disposal of empty containers, etc.; Permits - to remove permit requirements for pesticide applications that pose little environmental risk and replace permits with SARs for licensed exterminators.	N. Bazinet G. Cutten T. Fletcher vacancy (LR) V. vanWassena	0.20 0.70 0.50 0.20 0.60
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Total: 2.20

Project ODOE: \$38,600

STRATEGIC FRAMEWORK

(March 1997)

	Administration of the <i>Pesticides Act</i>	Pesticide Reform	Classification Harmonization
Alternative Delivery	<ul style="list-style-type: none"> · government/industry partnership in the management/collection of containers at vendor depot sites · government/industry partnerships to implement and promote education on urban integrated pest management 	<p>Licence streamlining:</p> <ul style="list-style-type: none"> - reduce licence types from 53 to 18 to reflect types of major pest management activities - externalize education to accredited educational facility - allow industry self certification of unlicensed assistants <p>Classification:</p> <ul style="list-style-type: none"> - allow Minister's delegation of signing authority - eliminate need for gazetting new pesticide products <p>Permit streamlining:</p> <ul style="list-style-type: none"> - eliminate permits for low risk pesticide application - replace permits with SAR's <p>Housekeeping Amendments:</p> <ul style="list-style-type: none"> - create less prescriptive insurance requirements - remove licensing requirements for innocuous pesticides - require container recycling and remove burial option 	<ul style="list-style-type: none"> · remove pesticide Schedules out of Regulation · replace gazetting of new pesticide products with a ministry web page · replace provincial classification system by a national system administered federally
Effective Client Services/ Priority Setting	<ul style="list-style-type: none"> · The pesticide regulatory reforms outlined in the workplan along with recommendations for alternative delivery mechanisms (ie: externalizing training, introducing SAR's, delegation of authority, reducing licence types, etc.) allows staff time and resources to be diverted to effective program administration, policy development, auditing, and compliance monitoring and effective customer service. · More clearly defined regulatory requirements and reduced regulatory approvals will improve client compliance and will remove administrative burdens to businesses; improved educational materials and externalizing training will provide greater technical and customer support for new applicants for licensing; reduction in licence types will remove administrative burden for licence renewals and processing of new applicants, and improved efficiency of the provincial classification system will provide for more timely access to new pesticide products and better customer service 		
Managing External Stakeholder Relations	<ul style="list-style-type: none"> · consultation through EBR notices, stakeholder/industry association meetings, presentations at conferences/symposiums/information sessions, and direct mailings to stakeholders and/or industry associations · formation of industry councils allows for "one voice" forum to dialogue with government on regulatory reforms and/or development of new programs (ie: Pesticide Industry Council and the Pesticide Industry Regulatory Council) · partnership with industry and other government agencies to share resources and provide effective program management (ie: container management program and urban integrated pest management strategy) 		

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Phytotoxicology Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Air, Ecosystem Health/Multimedia	Standard Development	Air Standards	<p>Air Standards are being developed for 33 substances this fiscal year. The first group of standards are undergoing consultation with stakeholders. Rationale documents for a second group of 19 air standards are now being completed and extensive stakeholder discussion is anticipated. In addition, an air standard for uranium is being developed. Until stakeholder discussions have been completed it is not possible to estimate the final number of standards that will be promulgated this year; however the estimate of 7 as identified in the business plan seems reasonable. Refining the adoption process so that it meets the needs of stakeholders is also under development. The branch will compile sampling methods, analytical methods, and ambient air concentrations in support of these standards.</p> <p>Other 97/98 deliverables include harmonized national air standards through staff participation on the Working Group on Air Quality Objectives under CEPA-FPAC for particulate matter (PM10/2.5), carbon monoxide and ozone. Work will be commencing on benzene and mercury. An interim standard for PM10 is also under way.</p>	<p>M. Dixon A. Kuja M. Marsh W. McIlveen</p> <p>Total: 1.28</p>	0.37 0.66 0.15 0.10

Project ODOE: \$8,000

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Phytotoxicology Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Expert Advice	EA + SSRA reviews	Provide input and comments on the hazards and risks of contaminants to terrestrial and aquatic ecosystems, and to human health in support of Environmental Assessments and Site-Specific Risk Assessments in accordance with the Ministry's new Guidelines for Use at Contaminated Sites.	M. Dixon R. Emerson W. Gizyn R. Jones C. Kinch A. Kuja M. Marsh W. McIlveen D. McLaughlin D. Terry	0.03 0.09 0.24 0.35 0.13 0.16 0.19 0.50 0.18 0.13
				Total:	2.01

Project ODOE: \$17,900

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Phytotoxicology Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Terrestrial Effects Assessment	Terrestrial Investigations and Emergencies	The branch will conduct approximately 40 terrestrial effects investigations around point sources of air and soil pollution and between 50 and 75 public complaint investigations. Staff will provide immediate emergency response investigation assistance to Operations Division for spills or accidental releases. Develop an MOEE policy for the management of radioactive wastes.	M. Dixon R. Emerson W. Gizyn R. Jones C. Kinch M. Marsh W. McIlveen D. McLaughlin D. Terry	0.07 0.89 0.76 0.22 0.85 0.17 0.39 0.68 0.72
				Total:	4.73

Project ODOE: \$42,000

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Phytotoxicology Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Standard Development	Terrestrial Standards	Soil placement criteria and guidance for sampling for use in the Materials Management Policy will be finalized as part of the Regulation Review exercise. A guidance document for sampling and analytical protocols for the utilization of sewage sludge on agricultural soils in Ontario will be completed. Through literature review and field surveys recommend/finalize "Quality Based" limits for biosolids stabilization, prior to utilizing the biosolids as fertilizer/soil supplements on agricultural lands.	M. Dixon R. Emerson R. Jones C. Kinch A. Kuja M. Marsh D. McLaughlin D. Terry	0.01 0.02 0.34 0.01 0.18 0.35 0.01 0.08
					Total: 1.00

Project ODOE: \$12,000

Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Terrestrial Effects Assessment	Terrestrial Toxicity Studies	A number of toxicity studies that support MOEE standards development and abatement/enforcement will be completed or worked on this year, including, final reports on dose:response studies undertaken to support revisions to soil guidelines (As, Cu, Sb, B, V, Ba) and ethylene in air, studying the effects of dust suppressants used on Ontario roads, and lead migration in soil in the vicinity of a secondary lead smelter.	M. Dixon R. Jones C. Kinch M. Marsh D. McLaughlin D. Terry	0.53 0.03 0.02 0.14 0.14 0.07
					Total: 0.92

Project ODOE: \$7,800

STRATEGIC FRAMEWORK

Phytotoxicology Section

FIELD INVESTIGATIONS:

Alternative Delivery Mechanisms:

A Doing Fewer Complaint Investigations

The establishment of a formal *complaint screening process* has significantly reduced the number of complaints conducted annually. This process assesses complaint requests relative to our legislated investigative mandate and refers complainants to alternative sources for assistance if an MOEE responsibility is clearly not demonstrated.

B More Efficient Investigation Scheduling

With the exception of legal and health-related investigations, and spills response, complaint investigations are scheduled to minimize travel time and costs. Where practical, an investigation would not be conducted until additional Phytotoxicology activities (eg. meetings, surveys) are scheduled for the same general area. In the past, complaints were given investigative priority and the investigation was conducted as soon as possible. This revision has met with some "consumer resistance", and so judgement calls are often required as to priority scheduling. This has become more of a concern as of 1996 when Phyto assumed responsibility for all five Regions of the Province.

C Revisions to Investigative Practices - Field Work

A conscious decision to reduce both the number of samples collected and the number of analyses requested. This works only because of the experience of the Phytotoxicology investigators. It results in less time in the field, less samples to LSB, and less time working up data.

D Reduction of Analytical Test Requirements

Screening level bioassay tests can now be conducted in-house to limit the need for further LSB support. Bench bioassays conducted at the Brampton facility are used to determine residual soil phytotoxicity and possibly eliminate the need for an LSB herbicide scans or other analytical requests. Soil salt (EC) analysis which is conducted at the Phyto Resources Rd processing laboratory also screens samples for possible phytotoxicity. As with the bioassay protocol, this is possible because of extensive investigative experience, and in-house controlled environment support.

In 1996 another analytical test reduction initiative was implemented. This involved making arrangements with the source of an environmental soil contamination problem to undertake the analysis of a large block of samples that were collected by Phyto staff. Because of the sensitivity of this issue, arrangements were made with LSB to undertake an audit of the external laboratory work, and this confirmed that the analyses were accurate and could be relied on by the citizens group involved in the issue.

E Field Investigation Final Report

The introduction of the *Field Investigation Final Report* in 1992 has resulted in an estimated 138 PDs savings to the end of the 1996 field season. This carbon-less form is completed by the investigator and left with the complainant (copy to Ops Div) when a pollutant is ruled out as the possible cause of the alleged problem. It is emphasized that these savings have only been possible because of the extensive experience of Phytotoxicology officers, who are able to recognize most pathological agents and therefore do not require the same level of diagnostic support as was available in the past (pathologist and a histopathologist have retired without replacement).

F Soil Pb Report

Introduction of the *Soil Pb Report* in 1994 has resulted in an estimated 24 PDs savings. Soil Pb in urban communities continues to be a legitimate health concern, particularly since the Minister announced a downwards revision of the soil Pb guideline. Resource savings are obtained by scheduling all of the soil Pb requests in a community to be done at one time, asking for only Pb by FAA from LSB, and using the one page report template.

G Introduction of PIMS

The *Phytotoxicology Information Management System* was brought on-line in 1996. This PC-based system is accessible to all Phytotoxicology staff and through a series of interactive data bases tracks the progress of all complaint and survey investigations, facilitates the preparation of routine laboratory and site identification forms, maintains an inventory of all sources for which Phytotoxicology investigations have been conducted, organizes and assigns report and investigation catalog numbers, calculates laboratory and investigation completion statistics, and generates workload status reports. This was a significant investment in software development that is expected to both significantly reduce the time required to process routine investigative paper-work and considerably improve the efficiency and accuracy of the investigation-related files (PIMS is sequential-operation controlled, i.e., Step 2 of the investigation file/paperwork cannot be conducted until Step 1 is completed, which ensures complete and accurate investigation files).

Effective Client Services and Priority Setting:

A Enhanced co-operation with Environmental Officers in Operations Division

By forging a closer relationship with local EOs more information is exchanged regarding the source being investigated. This results in a more efficient sampling strategy and more efficient use of LSB resources. This process has been formalized in 1997 via the creation of a 'Source Profile' information sheet which is being completed by Ops staff for every requested assessment survey being requested in 1997.

B Prioritizing Ops Div Requests

By having Ops Div prioritize their own survey request list (across all regions), Phyto management can ensure that the most important investigations are conducted regardless of resource constraints.

C Phased Investigative Response

A scaled-down preliminary investigation is conducted for first time surveys when an adverse effect is suspected but not known for sure. If contamination is confirmed with the preliminary investigation, Ops staff can re-prioritize their request for a more comprehensive follow-up investigation the next season.

D Revisions to Repeat Surveys.

Ops Div often requests repeat or annual surveys for some sources because of intense public or political concern or for compliance monitoring. Surveys have been substantially scaled down around some of these sources by either reducing the number of sample sites (because contamination patterns are known) and or by reducing the number of sample replicates (because with-in site chemical variability has been established by earlier work). This procedure only works where historical data are available and because of the experience of the Phytotoxicology investigator (which sites can be eliminated with out loss of survey integrity).

E More Efficient Scheduling

As in complaint investigations, travel costs have been reduced by scheduling work in the same general area to be done at the same time. Planned delayed response to maximize travel efficiency is not considered for spills response and legal/health-based investigation requests. Scheduling has been more of a problem now that Phyto has been mandated the responsibility for servicing the Northern Region.

F Investigation Tracking and Reporting to Clients

The progress of all investigations is monitored through PIMS and a back-up spreadsheet-based tracking system so that LSB and report completion dates are known to management, the investigators, and to Ops Div clients. These data are combined with a quarterly report that is prepared for management and circulated to Ops Div. This has several objectives: -ensures the Phyto investigators complete investigations in a timely manner, -informs Phyto/Branch management of investigative status in real-time, -informs Ops Div clients of status of their investigative requests, -and Ops Div clients can see all the work conducted for all Ops Div clients across all Regions, enhancing communication and co-operation between Ops Div and Phyto.

Many of these alternate delivery/streamlining initiatives have been made possible because of the experience of the Phyto investigative staff. Most have 12+ years experience and some have 20+ years experience; therefore, they are able to operate independently in the field. Their experience means they are knowledgeable about most common pathological problems that often mimic air pollution symptoms, and therefore they require less professional (pathology and histopathology) diagnostic support than in the past. Most importantly, Phyto investigators have developed a co-operative synergism in solving environmental problems, and although this may be intangible it unquestionably results in enhanced efficiency as a group - an example of how a team can be more productive than the sum of its individuals.

TERRESTRIAL STANDARDS:

Alternative Delivery Mechanisms:

The Phyto Section pioneered the first major criteria adoption process within SDB. This resulted in the development of over 1,600 soil and groundwater criteria for a total of 117 chemical parameters for use in the remediation of contaminated sites in Ontario within a very short timeframe.

A new process to incorporate terrestrial effects protection into air standards is also in progress, and involves the use of multi-component ecosystem models that estimate impacts on major components (animals and plants) of the terrestrial ecosystem.

Effective Client Service and Priority Setting:

Client service is maintained in the area of terrestrial standards through participation of the Manager in an Operations Division teleconferencing process that deals with questions raised by Environmental Officers who deal directly with proponents and develops responses that are circulated within the Ministry.

Phyto staff are also involved in the training sessions that are run by Training and Certification as part of the environmental officer training program for Operations Division. This allows us to get first hand input from E. O.'s who are using the guideline.

Managing Stakeholder Relations:Terrestrial Standards:

No special process in place. Problems are handled through the provision of expert advice over the phone or in

written responses.

EXPERT ADVICE:

Alternative Delivery Mechanisms:

The main alternative deliver mechanism that is being evaluated is having all Site Specific Risk Assessment documents developed by proponents who are cleaning up a contaminated site come in to MOEE only after they have been peer reviewed. It is anticipated that this will minimize the time involved in the internal review of these documents. This required the publication of a protocol document to ensure that risk assessors undertaking the work would understand the requirements of this type of work, thereby minimizing confusion and time required for SDB review/approval.

Effective Client Service and Priority Setting:

Participation in the Operations Division teleconferencing process ensures that problems related to the review/approval of SSRA documents and other issues related to the remediation of contaminated sites are resolved quickly.

Managing Stakeholder Relations:

None of consequence to date.

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Special Projects Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Ecosystem Health/Multimedia	Pesticides	Admin. Pesticides Act	Administer the Pesticides Act through preparation of pesticide classifications and EBR Registry notices, issuing Fumigation Permits, developing educational material for licensing, and providing policy guidance to regional staff, and representing MOEE on inter-jurisdictional committees on pesticides.	I. Rahmani	0.10
				Total:	0.10
				Project ODOE:	\$3,800
NA	Administration	Administration	Branch day-to-day operation , personnel, purchasing, budget, filing, library, phones, supplies, equipment rental, courier services, mail, journal subscription, site maintainance, security etc. SDB operates at four locations including the Etobicoke lab (Aquatic Toxicology), the Dorset Research Centre (Aquatic Sciences) and the Brampton Training Centre (Phytotoxicology).	G. Diamond Vacancy	0.04 0.35
				Total:	0.39
				Project ODOE:	\$64,700



STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Special Projects Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Air, Ecosystem Health/Multimedia	Standard Development	Air Standards	<p>Air Standards are being developed for 33 substances this fiscal year. The first group of standards are undergoing consultation with stakeholders. Rationale documents for a second group of 19 air standards are now being completed and extensive stakeholder discussion is anticipated. In addition, an air standard for uranium is being developed. Until stakeholder discussions have been completed it is not possible to estimate the final number of standards that will be promulgated this year; however the estimate of 7 as identified in the business plan seems reasonable. Refining the adoption process so that it meets the needs of stakeholders is also under development. The branch will compile sampling methods, analytical methods, and ambient air concentrations in support of these standards.</p> <p>Other 97/98 deliverables include harmonized national air standards through staff participation on the Working Group on Air Quality Objectives under CEPA-FPAC for particulate matter (PM10/2.5), carbon monoxide and ozone. Work will be commencing on benzene and mercury. An interim standard for PM10 is also under way.</p>	<p>S. Bailey R. Chapman G. Diamond D. Persaud I. Rahmani A. Szakolcai Vacancy</p>	<p>0.90 0.40 0.25 0.65 0.20 0.82 0.50</p>

Total: 3.72

Project ODOE: \$55,300



STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Special Projects Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water	Standard Development	Drinking Water Standards	Ontario Drinking Water Objectives (ODWO) for 8 substances are under development this fiscal year. MOEE will continue to rely upon the adoption of national standards developed by the Federal/Provincial/Territorial Subcommittee on Drinking Water. SDB actively participates on this committee. The major focus of this effort is the adoption of harmonized national standards. It is expected that the business plan commitment of 4 ODWO's will be met.	I. Rahmani Total:	0.10 0.10
				Project ODOE:	\$3,800
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Expert Advice	EA + SSRA reviews	Provide input and comments on the hazards and risks of contaminants to terrestrial and aquatic ecosystems, and to human health in support of Environmental Assessments and Site-Specific Risk Assessments in accordance with the Ministry's new Guidelines for Use at Contaminated Sites.	I. Rahmani Total:	0.10 0.10
				Project ODOE:	\$3,800

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Special Projects Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Expert Advice	Expert Witness & Enforcement Testing	Provide testimony in court proceedings and environmental hearings on the hazards and risks of contaminants to the terrestrial and aquatic environments, and to human health. In addition, the branch is called upon to perform toxicity tests on legal samples, with a corresponding court appearances. Provide expert technical witness in support of IEB and the Ministry legal action related to sewage spills and non-compliance with sewage effluent limits, rural NPS and other aquatic pollution, including atmospheric modelling and monitoring.	I. Rahmani	0.10
				Total:	0.10
Project ODOE:					\$3,800

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY

Special Projects Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Expert Advice	Support for ESSD, Ops Div and external clients	<p>It is expected that the branch will exceed last years demand of over 100 requests from clients on advice on the toxicology and risks of chemicals in the environment. This includes providing science policy and technical advice on operational issues and on major Ministry initiatives including the Smog Plan; Toxics Plan; Regulation Reform - LAMU; Mercury Action Plan; National Sulphur in Fuel Initiative; COA - pesticides; PERT; Hamilton Air Quality Initiative and Metro Toronto Area Air Initiative; Comparative Risk Assessment of Incineration vs Land filling; Surface Water Management Policy; Lakeshore Capacity; Accelerated Reduction/Elimination of Toxics (ARET - federal/provincial/industry initiative); Port Hope Community Health Study.</p> <p>Represent ESSD on the Regional Water Resource Supervisors Committee. Coordinate branch input to MOEE portion of the provincial biodiversity strategy. Provide assistance to PDB in the development of the STP Regulation. Provide assistance to Approvals Branch to assess new and innovative technologies for STPs, WTPs and stormwater facilities. Prepare a detailed technical guidance document entitled, "Design of Sampling Programs for Determining Success in Achieving Ecosystem Scale Management Objectives".</p>	<p>S. Bailey R. Chapman G. Diamond D. Persaud I. Rahmani A. Szakolcai Vacancy</p> <p>Total:</p>	<p>0.10 0.60 0.65 0.35 0.10 0.18 0.15</p> <p>2.13</p>

Project ODOE: \$9,900

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY

Special Projects Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Ecosystem Health/Multimedia	Standard Development	Surface Water Standards	PWQOs for 16 substances are under development this fiscal year. The major focus of this effort is the adoption of harmonized national standards. SDB participates on the Water Quality Guidelines Task Group of CCME and contributes to the development of national standards as a CCME partner. In addition, a revised PWQO for phosphorus (Precambrian shield lakes), needed for the MOEE's Lakeshore Development Guideline, is being completed in-house. It is expected that the business plan commitment of 8 PWQO's will be met.	I. Rahmani	0.10
				Total:	0.10
				Project ODOE:	\$3,800
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Standard Development	Terrestrial Standards	Soil placement criteria and guidance for sampling for use in the Materials Management Policy will be finalized as part of the Regulation Review exercise. A guidance document for sampling and analytical protocols for the utilization of sewage sludge on agricultural soils in Ontario will be completed. Through literature review and field surveys recommend/finalize "Quality Based" limits for biosolids stabilization, prior to utilizing the biosolids as fertilizer/soil supplements on agricultural lands.	I. Rahmani	0.10
				Total:	0.10
				Project ODOE:	\$3,800

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Special Projects Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Terrestrial Effects Assessment	Terrestrial Toxicity Studies	A number of toxicity studies that support MOEE standards development and abatement/enforcement will be completed or worked on this year, including, final reports on dose:response studies undertaken to support revisions to soil guidelines (As, Cu, Sb, B, V, Ba) and ethylene in air, studying the effects of dust suppressants used on Ontario roads, and lead migration in soil in the vicinity of a secondary lead smelter.	I. Rahmani	0.10
				Total:	0.10
Project ODOE:					\$3,800

STRATEGIC FRAMEWORK

Special Projects Section

STANDARDS DEVELOPMENT

Alternative Delivery Mechanisms:

Accelerated Air Standards Development

Use of consultants and staff to evaluate standards from other jurisdictions as candidates for adoption as is or with modification as Ontario standards is accelerating the development and revision of a large number of air standards. Minimal risk management analysis is done by MOEE, instead we are consulting with affected stakeholders to develop relevant information or to identify specific data gaps. These approaches are reducing the time, staff resources and ODOE requirements per standard.

Through searching the Internet, and background research, key contacts in relevant US states have been identified. A series of teleconference interviews, using a standardized questionnaire were held and report prepared comparing approaches between states and with Ontario to better understand and identify candidate jurisdictions for standard setting partnerships. Personal visits will be made to key states this fiscal year by senior staff to establish stronger linkages and better understand the comparative technical and economic advantages and disadvantages of different standard setting and implementation frameworks. This information is key to better assessing risk management implications to adopting specific standards in Ontario. We are working closely with IGO on this initiative.

Effective Client Services and Priority Setting:

More Efficient Identification of Standard Setting Needs

The branch released for comment the first Three Year Plan for Standard setting in fall 1996. Internal MOEE clients, external partners and stakeholders were given the opportunity to comment on the priorities and to be informed of our standard setting plans. The updated plan will be posted annually for comment and to provide a status report. Based on on-going stakeholder discussions, this approach is expected to become a more integral tool used by internal and external clients to help focus our priorities and to provide information and early warning. We are requesting similar planning mechanisms from our CCME partners under the upcoming Harmonization Accord and Standards Sub-Agreement to help us be better coordinated with other standard setting partners.

Communication of Information on Standards

OASIS (Ontario Accessible Standards Information) database is distributed to MOEE clients via diskette and loading on LANs. Better distribution methods will be investigated using newer electronic methods (MOEE intranet/Internet) and cost recovery opportunities for external distribution will be further pursued when key staffing vacancy is filled this fiscal year. The enhancement and marketing of OASIS will improve client service and communication and reduce internal staff time responding to requests for information on what is current standard for a particular contaminant.

Managing Stakeholder Relations

Major efforts and staff time have been and will be dedicated to consultation with stakeholders in developing standards and setting priorities. Staff have established key contacts with all major industrial and NGO associations. Meetings, workshops and correspondence contact is being used to consult on proposed standards. Commitments have been made in response to stakeholder requests for earlier involvement in the standard setting process and to the provision or shared development of information to address key knowledge gaps. The challenges are the demands on staff time, concerns about perceptions of bias and avoiding unproductive delays in promulgation of standards.

EXPERT ADVICE:

Alternative Delivery Mechanisms:

Section staff have accommodated MOEE requests for support on an ad hoc basis. Operations Division requests for support to air approvals, hearings, public concerns and Special Projects have and will continue to receive high priority. ESSD branch requests for help on priority projects such as the SMOG Plan and Toxics Plan also have received considerable support. Phasing down support to other ESSD branches will be necessary in this fiscal year due to significant air standards development pressures.

LIBRARY SERVICES:

Alternative Delivery Mechanisms:

Budget restrictions and the availability of electronic alternatives for some traditional hard copy books and journals, provides an incentive and opportunity to improve cost-effectiveness in delivery of core technical information support to the branch. The specific needs for and usage of information services will continue to be monitored closely to identify alternative, less costly delivery mechanisms. The need for focussed and fast identification and retrieval of technical support information remains a high priority in the downsized staff environment.

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Atmospheric Studies Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Air	Air Quality Management	Air Quality Modelling	Continue with developmental work on toxics deposition modelling; work in partnership with Environment Canada to develop a modelling capability for IP and RP; AERMOD model beta testing - Keep up with development of and implement, if appropriate, regulatory models.	N. Reid R. Bloxam S. Wong	0.10 0.55 0.40
Total: 1.05					
Project ODOE: \$29,999					
Clean Air	Air Quality Management	Air Quality Monit. and Mgmt. Policies & Strategies	Coordinate and develop ESSD strategy for monitoring air toxics. Participate in Federal/Industrial/Provincial evaluation of benefits of reducing the sulphur content of fuels. Contribute to NOx/VOC Management Plan Science Assessment Report. Coordinate the development of Ontario's Smog Plan and model scenario runs to support its development.	E. Loi R. Bloxam N. Reid S. Wong	0.40 0.20 0.25 0.20
Total: 1.05					
Project ODOE: \$54,999					
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Global Change and Long-range Transport	Assessment of Acid Gas Abatement	Monitor and track wet and dry deposition of acid rain related compounds. Fulfilment of federal-provincial agreement on acid rain. Assessment of effectiveness of acid gas abatement programs in Ontario (Countdown Acid Rain), Canada and the US as seen in reduced acid deposition. Publication of monitoring data listing and statistics reports for acid deposition (1995 data).	N. Reid D. Orr J. Varto	0.10 0.20 0.40
Total: 0.70					
Project ODOE: \$40,000					

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Atmospheric Studies Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Air	Air Quality Management	Characterization of Air Quality	Characterize urban air quality and provide data and data interpretation to aid abatement program development and standards setting process. Participation in, and coordination of, the Southern Ontario Oxidants Study (SONTOS) to advance knowledge on the issue of ground level ozone	N. Reid M. Spencer J. Varto D. Orr P. Steer B. Kruschel R. Bell	0.25 0.15 0.20 0.25 0.15 0.45 0.10
					Total: 1.55

Project ODOE: \$65,000

Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Global Change and Long-range Transport	Long-Range Transport of Pollutants (LRTAP) - Ecosy	Quantify atmospheric inputs of toxic organics and heavy metals into the Great Lakes Basin in fulfilment of requirements under COA and IADN. Publication of monitoring data listing and statistics reports; e.g., Volatile organic compound (1996 data), dioxins (1996 data), PAHs (1994 & 1995 data), and toxics deposition into the Great Lakes basin (1995 data)	B. Kruschel D. Orr M. Spencer J. Varto	0.50 0.40 0.10 0.20
					Total: 1.20

Project ODOE: \$50,000

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Atmospheric Studies Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Air	Air Quality Management	Site-Specific Air Quality Management	Identify, plan, coordinate/conduct and report source-specific studies to assess regional complaints and abatement problems. Provide scientific support to develop abatement targets and actions to improve air quality in Hamilton-Wentworth. Initiate scientific support to existing (or new) community based working groups to develop abatement targets and actions to improve air quality in Sault St. Marie.	R. Bloxam S. Wong N. Reid R. Bell E. Loi M. Shackleton P. Steer M. Spencer	0.10 0.10 0.10 0.65 0.50 0.50 0.05 0.40
				Total:	2.40

Project ODOE: \$55,000

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Atmospheric Studies Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Expert Advice	Support for ESSD, Ops Div and external clients	<p>It is expected that the branch will exceed last years demand of over 100 requests from clients on advice on the toxicology and risks of chemicals in the environment. This includes providing science policy and technical advice on operational issues and on major Ministry initiatives including the Smog Plan; Toxics Plan; Regulation Reform - LAMU; Mercury Action Plan; National Sulphur in Fuel Initiative; COA - pesticides; PERT; Hamilton Air Quality Initiative and Metro Toronto Area Air Initiative; Accelerated Reduction/Elimination of Toxics (ARET - federal/provincial/industry initiative); Port Hope Community Health Study.</p> <p>Provide leadership in rural non-point source pollution assessment and remediation by transferring existing and emerging technology through technical communications, seminars, workshops and on-site advice.</p> <p>Collect and analyse relevant environmental data, and coordinate development of school air quality measurement program; scientific support to existing (or new) community-based working groups to develop abatement targets and actions to improve air quality.</p>	D. Orr P. Steer R. Bloxam N. Reid S. Wong R. Bell M. Shackleton M. Spencer J. Varto	0.05 0.20 0.05 0.05 0.05 0.05 0.35 0.05 0.10
				Total:	0.95

Project ODOE: \$15,000



STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Atmospheric Studies Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Administration	Tracking of Issues & Briefing Notes	Coordinate and track responses to ADM, DM and Minister's office requests. See Expert Advice for activities related to the preparation of briefing material.	S. Wong R. Bloxam N. Reid M. Shackleton P. Steer R. Bell E. Loi	0.05 0.10 0.10 0.10 0.60 0.05 0.10
					Total: 1.10

Project ODOE: \$0

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Aquatic Science Section

Business Plan Category	Project	Description	Products	Staffing	FTE
NA	Administration	Administration	Branch day-to-day operation , personnel, purchasing, budget, filing, library, phones, supplies, equipment rental, courier services, mail, journal subscription, site maintainance, snow removal, security etc. SDB operates at four locations including the Etobicoke lab (Aquatic Toxicology), the Dorset Research Centre (Aquatic Sciences) and the Brampton Training Centre (Phytotoxicology).	M. Velanosi J. Jones M. Futter	0.60 0.60 0.15 Total: 1.35
				Project ODOE:	\$95,000
Clean Air	Assessment and Development of New Technology	Air instrumentation and methods development	Develop, assess and evaluate instrumentation and methods for use in investigations to understand and characterize air quality problems.	R. Reid K. Somers	0.40 0.50 Total: 0.90
				Project ODOE:	\$15,000

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Aquatic Science Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Global Change and Long-range Transport	Effects of Global Change	Evaluate long-term meteorological, physical, hydrologic, biological and chemical data collected for Lakes and catchments in Ontario and evaluation of the possibility that changing climate has effected aquatic ecosystems detrimentally	M. Futter R. Girard L. Scott N. Yan B. Clark	0.30 0.50 0.50 0.30 0.50
				Total:	2.10
				Project ODOE:	\$60,000
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Global Change and Long-range Transport	Interaction of Stressors	Evaluate the role of UV-B in controlling the carbon cycle in lakes; linkages between the effects of acid deposition on aquatic ecosystems. Report on joint effect of acid and varying climate on the chemistry and biota of Plastic Lake. Evaluate the linkage between climate change, drought and the sulphur cycle in Ontario catchments and prepare paper; role of changes in UV-B in the production of greenhouse gases.	M. Futter N. Yan B. Clark	0.30 0.40 0.20
				Total:	0.90
				Project ODOE:	\$20,000

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Aquatic Science Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Global Change and Long-range Transport	Long-Range Transport of Pollutants (LRTAP) - Ecosy	Evaluate the response of aquatic and terrestrial ecosystems to the decline in sulphur emissions that has occurred and will continue to occur as a result of the Ministry's Countdown '94 programme and concurrent reductions in eastern Canadian and American emissions; maintain monitoring programme on selected aquatic ecosystems; report on rates of natural replacement of biota in lakes varying in damage; report on changes in crayfish and benthos of Dorset Lakes; develop a new method of assessing future catchment acidification; report on zooplankton of Dorset lakes varying in chemistry; produce models characterizing the normal range of variation in aquatic communities.	B. Clark R. Reid M. Futter K. Somers N. Yan L. Scott	0.30 0.40 0.20 0.50 0.30 0.30
				Total:	2.00
				Project ODOE:	\$75,000
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Global Change and Long-range Transport	Mercury Action Plan	Develop the rationale for policies and options for control of mercury in the Ontario environment. Assess newly developed mercury chemistry model along with an updated mercury emission inventory perform model simulations.	G. Mierle	1.00
				Total:	1.00
				Project ODOE:	\$25,000

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Aquatic Science Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Ecosystem Health/Multimedia	Watershed Management	Site-specific Watershed Management	Deliver MOEE's component of the second phase of the Lake Simcoe Environmental Management Strategy (LSEMS) in collaboration with the Ministries of Natural Resources and Agriculture Food and Rural Affairs and the Lake Simcoe Region Conservation Authority; measure the water quality of Lake Simcoe at 12 locations 12 times; report quantifying trends in nutrient, clarity and algae in lake; measure concentrations of nutrients and contaminants and measure seasonal and annual flow rates inflowing streams and rivers; refine oxygen-phosphorus models.	R. Girard J. Jones L. Scott K. Nicholls	0.50 0.30 0.20 1.00
				Total:	2.00
				Project ODOE:	\$65,000
Clean Water	Watershed Management	Surface water modelling	Improve existing scientific models relating shoreline residential development to water quality.	N. Hutchinson	0.50
				Total:	0.50
				Project ODOE:	\$30,000



STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Technical Services Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Land	Groundwater Management	Groundwater field testing	Continue geophysical testing for contaminated groundwater plumes or buried waste.	K. Fligg J. Mulira	0.50 0.50
					Total: 1.00
					Project ODOE: \$39,790
Clean Water, Clean Land	Groundwater Management	Groundwater Initiatives	Develop an improved management tool for evaluating groundwater contribution to base flow. Update corporate groundwater database	I. Pawlowski M. Goodwin	0.30 0.50
					Total: 0.80
					Project ODOE: \$5,310
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Expert Advice	Guideline preparation	Prepare guidelines for waste wood incineration; bio-medical waste incineration; crematoria; methane concerns associated with Land Use Approval; sewage sludge incineration; animal waste incineration; materials usage for landfill cover; principles of odour abatement; determination of contaminant limits and attenuation zones; groundwater quality interference; incorporation of reasonable use concept into groundwater; leaking underground storage tanks; leachate source strength.	M. Goodwin J. Mulira G. Donnelly K. Smith	0.50 0.10 0.50 0.50
					Total: 1.60
					Project ODOE: \$0

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Technical Services Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water	Assessment and Development of New Technology	Industrial Wastewater Technologies	Assess applications of Oxygen Hydrogen Peroxide and Ozone in treating industrial waterwater. Document wastewater control strategies that are simpler, quicker, and more cost effective	J. Hawley	0.70
					Total: 0.70
Project ODOE:					\$1,330



STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY

Technical Services Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Expert Advice	Support for ESSD, Ops Div and external clients	<p>It is expected that the branch will exceed last years demand of over 100 requests from clients on advice on the toxicology and risks of chemicals in the environment. This includes providing science policy and technical advice on operational issues and on major Ministry initiatives including the Smog Plan; Toxics Plan; Regulation Reform - LAMU; Mercury Action Plan; National Sulphur in Fuel Initiative; COA - pesticides; PERT; Hamilton Air Quality Initiative and Metro Toronto Area Air Initiative; Comparative Risk Assessment of Incineration vs Land filling; Surface Water Management Policy; Lakeshore Capacity; Accelerated Reduction/Elimination of Toxics (ARET - federal/provincial/industry initiative); Port Hope Community Health Study.</p> <p>Assist Waste Reduction Branch in the development and implementation of the Sewage Biosolids and Organic Wastes Application on Agricultural Lands Regulation.</p> <p>Provide a series of manuals and workshops throughout the province to disseminate information to plant operators, haulers, farmers and municipalities on best management practices regarding agricultural land utilization of STP biosolids.</p> <p>Provide leadership in rural non-point source pollution assessment and remediation by transferring existing and emerging technology through technical communications, seminars, workshops and on-site advice.</p> <p>Prepare: Leachate Source Strength Guideline; Letters of Comfort for Technology Assessment under new protocol (up to 20 per yr), Federal ETV Initiative; Wood Preservation protocol;</p>	G. Castonguay G. Donnelly I. Pawlowski K. Smith	0.50 0.45 0.30 0.50 Total: 1.75

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Technical Services Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Project ODOE:					\$67,650
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Assessment and Development of New Technology	Technical Reports	Prepare reports on: achieving PWQO's at Ontario's Mines; simplification of existing industrial wastewater Control Strategies; manual for soils remediation; applications of geophysics in locating buried wastes and contaminated groundwater; risk assessment of groundwater issues and landfill technology; sealing practices for exploratory boreholes and abandoned wells; aquifer restoration abandonment; control technologies for fine particulate matter; applications of continuous emissions monitoring; an improved management tool for estimating groundwater contribution to stream flow.	K. Fligg J. Mulira I. Pawlowski A. Deshpande G. Azocar G. Castonguay D. Maftei J. Hawley	0.50 0.40 0.40 1.00 1.00 0.50 1.00 0.20
Project ODOE:					Total: 5.00
Project ODOE:					\$14,590

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Water and Wastewater Optimization Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water	Assessment and Development of New Technology	Drinking Water Plant Technologies	Demonstrate and promote the Composite Correction Program (CCP) as an effective protocol to optimize drinking water plants to remove Cryptosporidium. Evaluate more effective alternatives to conventional filtration treatment of drinking water. Reduce THM concentrations in drinking water in 5 drinking water plants by process modifications without compromising disinfection. Develop a standardized protocol for to assess full-scale application of membrane technology. Develop standardized procedures for evaluating changes in water treatment to reduce the rate of corrosion and release of lead into domestic water supplies. Revise and update MOEE Chlorination Bulletin to cover alternative disinfectants and best design and operating procedures. Evaluate the effectiveness of the use of iodine for pipeline cleaning.	T. Edmonds H. Broomer M. Uza	0.80 0.70 0.80 Total: 2.30

Project ODOE: \$201,000

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Water and Wastewater Optimization Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water	Assessment and Development of New Technology	Sewage Treatment Plant Technologies	<p>Refine, demonstrate and promote "On/off" aeration as an energy efficient operating strategy to reduce acute toxicity caused by ammonia in sewage effluent. Evaluate, demonstrate and promote the use of two innovative technologies to remove total phosphorus and ammonia toxicity without the use a metal salt solution. Evaluate, demonstrate and promote the application of two innovative technologies to retrofit existing plants to remove ammonia toxicity. Establish the design and life-cycle costs of four low cost alternative processes to upgrade Thunder Bay STP from primary to secondary treatment.</p> <p>Evaluate alternatives to improve biosolids stabilization process to divert biosolids from incineration and landfills to beneficial re-uses on agricultural lands and acid mine tailings.</p> <p>Define current status and environmental impacts due to septic tank failures and evaluate alternative technologies.</p>	T. Ho M. Manoharan	0.59 0.70 Total: 1.29
					Project ODOE: \$70,000

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Water and Wastewater Optimization Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Land	Assessment and Development of New Technology	Stormwater Technologies	<p>Evaluate, adapt and promote the use of 11 optimization methods, lower cost innovative technologies and pollution prevention practices to ensure that stormwater management facilities can comply with MOEE policies and standards, defer and /or eliminate unnecessary capital expenditures and to sustain long-term urban development and ecosystem health.</p> <p>Evaluate, demonstrate and promote the use of the following technologies: oil/water separators, wetlands, road side ditches, CSO High-Rate treatment, in-lake flow balancing systems.</p>	T. Ho	0.01
				Total:	0.01
				Project ODOE:	\$0

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY

Water and Wastewater Optimization Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Expert Advice	Support for ESSD, Ops Div and external clients	<p>It is expected that the branch will exceed last years demand of over 100 requests from clients on advice on the toxicology and risks of chemicals in the environment. This includes providing science policy and technical advice on operational issues and on major Ministry initiatives including the Smog Plan; Toxics Plan; Regulation Reform - LAMU; Mercury Action Plan; National Sulphur in Fuel Initiative; COA - pesticides; PERT; Hamilton Air Quality Initiative and Metro Toronto Area Air Initiative; Comparative Risk Assessment of Incineration vs Land filling; Surface Water Management Policy; Lakeshore Capacity; Accelerated Reduction/Elimination of Toxics (ARET - federal/provincial/industry initiative); Port Hope Community Health Study.</p> <p>Assist Waste Reduction Branch in the development and implementation of the Sewage Biosolids and Organic Wastes Application on Agricultural Lands Regulation.</p> <p>Provide on-site technical assistance to municipalities when there are parasitic outbreaks in drinking water.</p> <p>Provide a series of manuals and workshops throughout the province to disseminate information to plant operators, haulers, farmers and municipalities on best management practices regarding agricultural land utilization of STP biosolids.</p> <p>Prepare: Leachate Source Strength Guideline; Letters of Comfort for Technology Assessment under new protocol (up to 20 per yr), Federal ETV Initiative; Wood Preservation protocol;</p> <p>Provide assistance to PDB in the development of the STP Regulation.</p>	H. Broomer T. Edmonds M. Manoharan M. Uza T. Ho	0.20 0.20 0.20 0.20 0.40 Total: 1.20

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Water and Wastewater Optimization Section

Business Plan Category	Project	Description	Products	Staffing	FTE
			<p>New Environmental Technology Evaluations (NETE)- to evaluate and provide expert letters on the application of new environmental technologies for water and wastewater technologies in Ontario. This is a one year pilot test program. A fee of \$500 to \$2000 per evaluation will be charged to the proponent.</p>	Project ODOE:	\$5,000
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Standard Development	Terrestrial Standards	<p>Soil placement criteria and guidance for sampling for use in the Materials Management Policy will be finalized as part of the Regulation Review exercise. A guidance document for sampling and analytical protocols for the utilization of sewage sludge on agricultural soils in Ontario will be completed. Through literature review and field surveys recommend/finalize "Quality Based" limits for biosolids stabilization, prior to utilizing the biosolids as fertilizer/soil supplements on agricultural lands.</p>	M. Manoharan Total:	0.20 0.20

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Ecosystem Science Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Ecosystem Health/Multimedia	Watershed Management	Ecosystem-based watershed Mgmt	Support and encourage locally initiated, community driven ecosystem-based watershed management across the province. Prepare documents on: Formulating objectives for management on an ecosystem scale; Valuation for settling management objectives on an ecosystem scale; Predicting the ecological future; Ways to determine success in achieving ecosystem scale management objectives. Provide decision support systems and integrated database systems for stream assessment and watershed management, methodologies for applying watershed data, pattern recognition, trend analysis and filling in data gaps.	G. Bowen M. Gordon Z. Novak K. Jones	0.70 0.50 0.25 0.74
				Total:	2.19
				Project ODOE:	\$21,561
Clean Water, Clean Land	Watershed Management	Implementation of stormwater policies	Participate in the development and enforcement of MOEE policies, programs standards and implementation plans for stormwater.	Z. Novak M. Gordon	0.08 0.06
			Conduct scientific research and investigation into best stormwater management strategies for sustaining long-term urban development and ecosystem health. Deal with issue of legislative ambiguities with stormwater drainage; Land Drainage Workshop, Land Drainage conference; provide input to MTO's Drainage Manual.	Total:	0.14
				Project ODOE:	\$0

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Ecosystem Science Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Land	Groundwater Management	Mapping Groundwater Discharge Zones	Develop procedures for mapping groundwater discharge zones.	G. Bowen	0.10
				Total:	0.10
Project ODOE:					\$14,015
Clean Water	Groundwater Management	Models for predicting Hydrolog. Change	Represent MOEE on multi-agency committee to evaluate the efficacy of models available for predicting hydrological change on a watershed scale.	P. Nettleton M. Gordon K. Jones	0.20 0.20 0.10
				Total:	0.50
Project ODOE:					\$0
Clean Water	Assessment and Development of New Technology	Sewage Treatment Plant Technologies	Evaluate alternatives to improve biosolids stabilization process to divert biosolids from incineration and landfills to beneficial re-uses on agricultural lands and acid mine tailings. Define current status and environmental impacts due to septic tank failures and evaluate alternative technologies.	P. Mar	0.20
				Total:	0.20
Project ODOE:					\$21,561

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Ecosystem Science Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Ecosystem Health/Multimedia	Watershed Management	Site-specific Watershed Management	Preparation of The Grand (Watershed) Strategy; Promotion and Encouragement of Subwatershed Planning; for the Grand Tributaries completion of the MOEE/GRCA Phase III Agreement; assistance with the Development of the GRCA's Total Water Quality Program (a Phosphorus Trading PS/NPS Program).	K. Jones P. Mar G. Bowen Z. Novak M. Gordon	0.10 0.02 0.20 0.65 0.01
			MOEE contributions to MNR led Watershed Management Plan for the Madawaska River.		Total: 0.98
			Prepare Duffins Creek Management Strategy; develop and apply remote sensing applications; develop compact disk technology for distribution of watershed data.		
Project ODOE:					\$36,653

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Ecosystem Science Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Land	Assessment and Development of New Technology	Stormwater Technologies	<p>Evaluate, adapt and promote the use of 11 optimization methods, lower cost innovative technologies and pollution prevention practices to ensure that stormwater management facilities can comply with MOEE policies and standards, defer and /or eliminate unnecessary capital expenditures and to sustain long-term urban development and ecosystem health.</p> <p>Evaluate, demonstrate and promote the use of the following technologies: oil/water separators, wetlands, road side ditches, CSO High-Rate treatment, in-lake flow balancing systems.</p>	P. Mar	0.40
				Total:	0.40
Project ODOE: \$53,903					

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY

Ecosystem Science Section

Business Plan Category	Project	Description	Products	Staffing	FTE
Clean Water, Clean Air, Clean Land, Ecosystem Health/Multimedia	Expert Advice	Support for ESSD, Ops Div and external clients	<p>It is expected that the branch will exceed last years demand of over 100 requests from clients on advice on the toxicology and risks of chemicals in the environment. This includes providing science policy and technical advice on operational issues and on major Ministry initiatives including the Smog Plan; Toxics Plan; Regulation Reform - LAMU; Mercury Action Plan; National Sulphur in Fuel Initiative; COA - pesticides; PERT; Hamilton Air Quality Initiative and Metro Toronto Area Air Initiative; Comparative Risk Assessment of Incineration vs Land filling; Surface Water Management Policy; Lakeshore Capacity; Accelerated Reduction/Elimination of Toxics (ARET - federal/provincial/industry initiative); Port Hope Community Health Study.</p> <p>Represent ESSD on the Regional Water Resource Supervisors Committee. Coordinate branch input to MOEE portion of the provincial biodiversity strategy. Provide assistance to PDB in the development of the STP Regulation. Provide assistance to Approvals Branch to assess new and innovative technologies for STPs, WTPs and stormwater facilities. Prepare a detailed technical guidance document entitled, "Design of Sampling Programs for Determining Success in Achieving Ecosystem Scale Management Objectives".</p> <p>Assist Waste Reduction Branch in the development and implementation of the Sewage Biosolids and Organic Wastes Application on Agricultural Lands Regulation.</p> <p>Provide a series of manuals and workshops throughout the province to disseminate information to plant operators, haulers, farmers and municipalities on best management practices regarding agricultural land utilization of STP biosolids.</p>	M. Gordon K. Jones P. Mar Total: 0.44	0.11 0.03 0.30

STANDARDS DEVELOPMENT BRANCH WORKPLAN SUMMARY
Ecosystem Science Section

Business Plan Category	Project	Description	Products	Staffing	FTE
			<p>Provide leadership in rural non-point source pollution assessment and remediation by transferring existing and emerging technology through technical communications, seminars, workshops and on-site advice.</p> <p style="text-align: right;">Project ODOE: \$37,730</p>		
Clean Water	Watershed Management	Surface water modelling	<p>Water models will be used to link discharge loadings and environmental impacts (water/sediment/biota) by: delineation of impact; derivation of loading limits for new outfalls; design of remedial strategies at contaminated sediment sites; litigation support; dredging impacts from April 1996 pilot study in the St. Clair R.; leachate loss from Fighting Island upon the Detroit R; develop new spill mass estimation method.</p> <p>At the time of spills (depending on location) water modelling tools will be used to assess the potential impacts; the development of new modelling tools as needed; "Quick estimate" spill model for Lake Ontario; extend to include Darlington NGS and all intakes; 3-D Lake Ontario spill model.</p> <p style="text-align: right;">Project ODOE: \$7,978</p>	P. Nettleton Total:	0.71 0.71

APPENDIX B

Three Year Plan for Standards Setting

and

Summary of standards to be developed each year

STANDARDS DEVELOPMENT BRANCH THREE YEAR PLAN FOR STANDARD-SETTING

PURPOSE

The Ministry's primary role is to set ... tough rules and standards and will ensure that they are met. It will encourage innovative approaches to meet those rules and standards.

(Page 7, May 1996 Business Plan of the Ministry of Environment and Energy)

The Ministry of Environment and Energy (MOEE), through the Standards Development Branch (SDB) sets environmental quality standards¹ to protect human health and the ecosystem. Standards are developed for air, soil, ground water, surface water, drinking water, sediment and biota. The Ministry has identified its priorities in this area and a Plan which identifies standards which need to be established or revised over the next three years has been developed. The primary purpose in developing the Plan was to seek comments from stakeholders and any interest from potential partners willing to be involved in developing specific standards or contributing information in this regard.

A major challenge facing the Ministry is the need to deliver an increased number of scientifically sound environmental standards in a cost effective manner. As such the Ministry is actively adopting standards from other jurisdictions and encouraging joint development of standards through partnership with other regulatory agencies, the regulated community and other stakeholders to avoid duplication of effort and to make the best use of available resources and information. If these avenues are not possible then in-house development is undertaken.

Early consultation on the Plan was undertaken to ensure that all the relevant information was considered during the development process; to provide an opportunity to discuss and clarify the priority needs; and, for advance notification as to which standards were under review or development.

Part A of this document provides a brief description of the uses and types of standards set and the general standard-setting process. Part B describes the consultation process which will be used to establish and revise the list of candidate substances for standard-setting.

¹ The term "standard" used in this document includes any numerical ambient environmental quality limit set by the ministry. In this context, standard is synonymous with guideline, objective, and criteria.

PART A

DESCRIPTION OF STANDARDS

MOEE develops standards to make environmental management decisions. These standards define acceptable or desirable environmental quality to safeguard human health and the ecosystem. Standards are established to prevent adverse effects on the most sensitive receptors (human or ecological). The Ministry's standard-setting procedures also take into account multi-media considerations in recognition of the fact that some contaminants can move through the environment, persist for long periods, and/or accumulate in the food chain; and, that receptors can be simultaneously exposed to more than one pathway.

In keeping with MOEE's Statement of Environmental Values (under the Environmental Bill of Rights [EBR]) the Ministry will exercise a precautionary approach in its decision-making. Especially when there is uncertainty about the risk presented by a particular pollutant or classes of pollutants, the Ministry will exercise caution in favour of the environment. In addition, MOEE takes into account economic and technical considerations either in the development of these standards, or in their site-specific application. Consultation is undertaken with stakeholders, including industry, prior to approval.

Uses

Specific uses of standards within the Ministry include:

- ensuring protection of air quality, surface water and drinking water;
- establishing discharge limits from municipal and industrial sources in a Certificate of Approval (C of A) or other legal control instrument;
- assessing need for or adequacy of clean-up of soils and sediment in relation to spills or historic contamination such as in the Areas of Concern or the decommissioning of an industrial site;
- assessing general environmental quality and trends from surveillance and monitoring data;
- evaluating environmental assessment project impacts; and
- supporting investigations and enforcement activities where environmental harm has occurred.

Types

Over the last 20 years Ontario has developed a comprehensive set of standards. Key standards are:

- Air Standards, Criteria and Guidelines
- Ontario Drinking Water Objectives
- Provincial Water Quality Objectives
- Biota Guidelines
 - Tissue Residue Guidelines
 - Vegetation [Upper Limits of Normal]
 - Sports Fish Consumption Advisories
- Provincial Sediment Quality Guidelines
- Soil and Ground Water Criteria for Use at Contaminated Sites in Ontario
- Ontario Typical Range for Soils
- Compost Guidelines
- Sewage Sludge Guidelines

In addition, the Ministry is in the process of developing Soil Quality Criteria to assist in decisions regarding the placement/disposal of contaminated soil and soil-like materials.

A description of the existing standards is provided below:

Air Standards

Ontario has point of impairment (POI) limits and corresponding ambient air quality criteria. Ambient air quality criteria are established to protect human health, other environmental receptors (primarily vegetation) and prevent odours. These criteria are used to assess the quality of the ambient environment and for use in control orders, but are not directly enforceable. The POI limits, however, which are derived from the ambient air quality criteria, and are prescribed in Regulation 346 are directly enforceable. POI limits specify the maximum 1/2 hourly average ambient air concentrations that are permitted for various chemicals and are used to calculate the allowable amount of emissions from a source. These limits are developed by the Ministry as a basis for approvals, compliance and enforcement and create a level playing field for industry.

Ontario Drinking Water Objectives

Ontario's drinking water objectives are generally adopted from the Canadian Drinking Water Guidelines. These national guidelines are developed through a federal-provincial-territorial process through which Health Canada is responsible for undertaking the risk assessment component while the provinces are responsible for the risk management aspects which involve evaluating the technical feasibility and economic considerations of applying the objective in that province.

Provincial Water Quality Objectives

Provincial water quality objectives are maximum desirable concentrations of chemicals which ensure that surface waters are satisfactory for aquatic life and recreation. They are developed with a margin of safety to protect the most sensitive aquatic life-stage of an organism for an indefinite exposure. Technical feasibility and economics are considered on a case-by-case basis in the Ministry's approval process for individual discharges.

In the past, MOEE has developed the majority of its water quality objectives internally, however, future objectives will be adopted or developed in partnership through the national Canadian Water Quality Guideline Task Group which reports to the Canadian Council of Ministers of the Environment (CCME). In general, MOEE objectives are comparable to guidelines developed through the national CCME process.

Provincial Sediment Quality Guidelines

Provincial Sediment Quality Guidelines provide three management levels - the no-effect level (or background), the lowest effect level and the severe effect level. These levels are derived from actual field data on the presence or absence of sediment-dwelling organisms with various levels of contaminants in sediment. The guidelines are used in remedial action plans and to determine how to manage dredged material or whether material can be placed in water such as for the creation of lakefills.

Future objectives will be adopted or developed in partnership through the national Canadian Water Quality Guideline Task Group which reports to the Canadian Council of Ministers of the Environment.

Ontario Typical Range (OTR)

The MOEE has developed a methodology to determine the normal range in chemical concentration for soils, vegetation, moss bags and snow across the province. The values that are developed from this new (1993) process will eventually replace the former Upper Limits of Normal (ULN) guidelines. The OTR is established to provide guidance to MOEE staff in the assessment of contamination arising from air and soil borne emissions to the environment and to assist in the development of other background-oriented guidelines for the disposal of waste soils and like-materials, the application of compost to soils and for the clean-up of contaminated sites via a background approach.

Biota Guidelines

There are three different types of biota guidelines developed or adopted by MOEE. These are designed to protect wildlife and aquatic organisms; vegetation; and human health, respectively.

- Aquatic organisms and terrestrial wildlife that feed upon them are protected by Tissue Residue Guidelines (TRGs). TRGs are acceptable concentrations of chemicals in aquatic organisms which ensure that wildlife (birds and mammals) which eat those organisms will be protected. They are developed with a margin of safety to protect the most sensitive wildlife which consume aquatic life for a lifetime exposure.

The protocol for developing TRGs is currently being developed through the Canadian Council of Ministers of the Environment Water Quality Guideline Task Group. Once approved, CCME will use the protocol to develop TRGs for critical toxic, persistent and bioaccumulative substances.

- Vegetation on agricultural and residential lands are protected against toxicity resulting from uptake of contaminants in soil through phytotoxicity-based soil guidelines. MOEE also has set Upper Limits of Normal for soil to assist in the interpretation of environmental monitoring data collected in the vicinity of air-borne emission sources. These will be superseded by the "Ontario Typical-Range" (OTR) guidelines for soil that are now under development.
- Ontario sport fish consumption advisories apply to anglers who consume moderate quantities of their catch. These advisories are published in the Guide to Eating Ontario Sport Fish. Ontario's advisories are based on guidelines developed by Health Canada.

Health Canada has developed guidelines for a large number of contaminants but only five contaminants or groups of contaminants result in the majority of sport fish consumption restrictions. These are mercury, PCBs, mirex, dioxins/furans, toxaphene and DDT.

Soil and Ground Water Criteria for Use at Contaminated Sites in Ontario and Soil Quality Criteria

Soil and ground water criteria have recently been established to provide guidance to proponents and stakeholders in cleaning up contaminated sites in Ontario. The criteria serve as clean-up goals or targets and provide flexibility to proponents based on existing and future land and ground water uses of an area. These criteria allow proponents to voluntarily proceed with assessing and remediating their sites without the need for government supervision or costly site-specific risk assessment. The new guidelines also offer proponents the option of developing site-specific criteria if the generic criteria do not meet their specific needs.

The criteria also assist proponents and the Ministry in making decisions on whether a site must be remediated. These decisions are made on a case-by-case basis and require a determination of whether or not adverse effects are occurring on the property or in areas off-site.

In addition to the set of decommissioning criteria, the Ministry is proceeding with the development of soil quality criteria to assist in decisions regarding the placement/disposal of contaminated soil and soil-like materials. This will help divert some of the construction fill and

other marginally contaminated materials from landfill waste disposal sites and provide additional options for placement.

Compost Guidelines

The Ministry has established *Interim Guidelines for the Production and Use of Aerobic Compost in Ontario* (1991) and in Regulation 101/94. Criteria levels are available for trace metals and these now require re-assessment due to changes in other criteria on which they were based. The Canadian Council of Ministers of the Environment is currently finalizing a national guideline for metals in compost, and these will be assessed as part of the revision process.

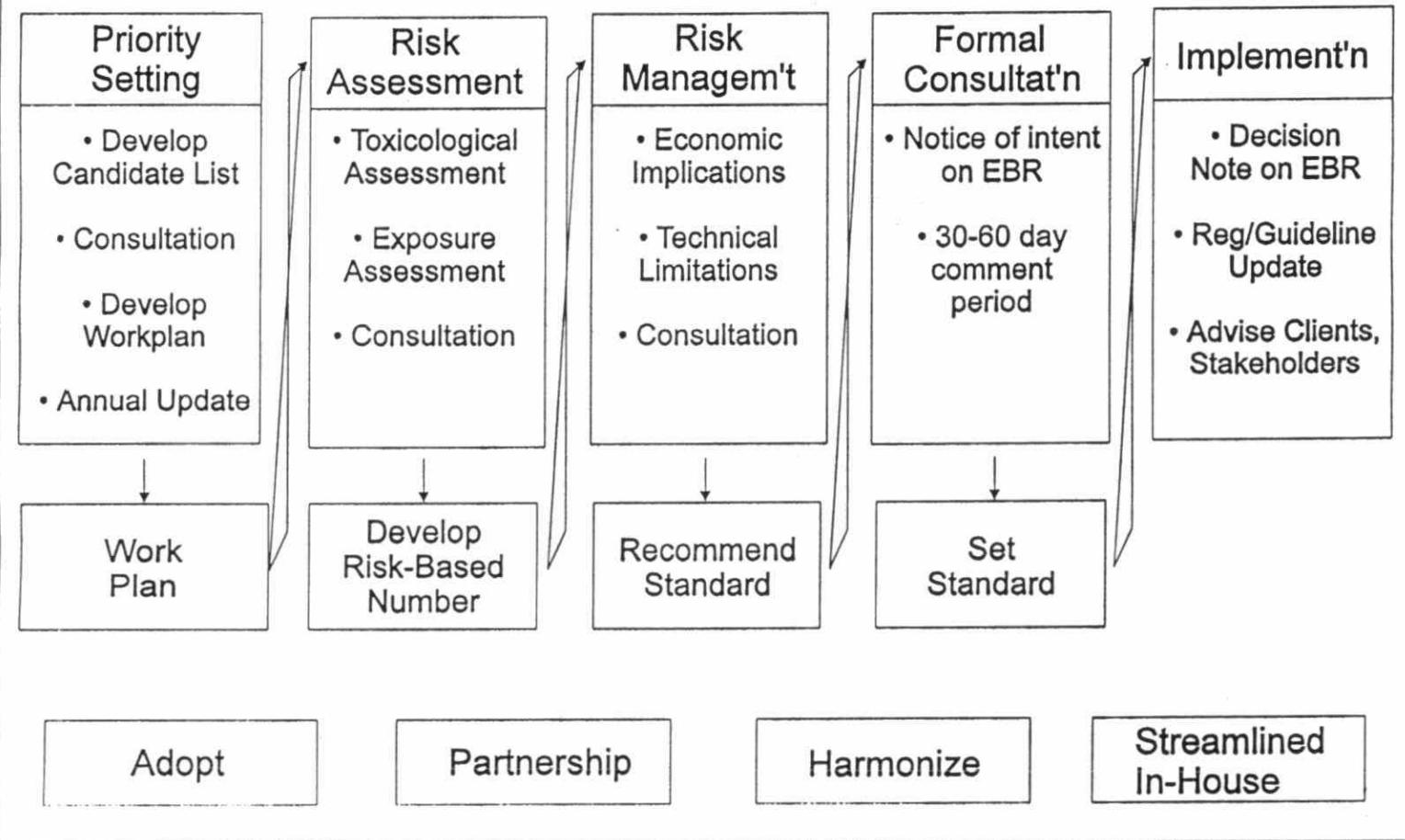
Sewage Sludge Guidelines

A set of sewage sludge application guidelines for agricultural lands has been developed by a joint effort through the MOEE/OMAFRA (Ontario Ministry of Agriculture, Food and Rural Affairs) Biosolids Utilization Committee. Membership on the committee consists of staff from the two lead ministries plus the Ministry of Health, the Wastewater Technology Centre, Brock University, the University of Guelph, the Municipal Engineers Association, the association of Local Official Health Agencies, sludge haulers and the Ontario Federation of Agriculture. The guideline currently covers metals. Additional elements/compounds are under consideration for future guideline development.

STANDARDS DEVELOPMENT PROCESS

Standards are developed through the generic multi-step process described below and summarized in Figure 1. This generic process applies to all standard-setting options used by the Ministry i.e. adoption, following careful review of standards of other jurisdictions; partnerships with other agencies and stakeholders; and, standards developed in-house.

Standards Development Process



(1) Priority Setting

There are a number of priority setting factors used by the SDB based on:

- needs identified to support various Ministry programs (as discussed earlier under Uses);
- consideration of various lists such as the National Pollutant Release Inventory;
- meeting MOEE commitments to priorities of federal/provincial standard-setting working groups;
- reviewing ministry standards in response to new information related to environmental/human health effects; and
- a preliminary evaluation of risk posed by the candidate substance.

Since candidate substances requiring standards exceed the resources available to set standards, the initial priority list is further refined based on the degree of risk presented from exposure to various chemicals and in consultation with clients and stakeholders.

(2) Risk Assessment

Risk assessment is the scientific evaluation of the likelihood of the occurrence of adverse health effects due to exposure of a human or non-human organism to a physical, chemical or biological agent. Risk assessment consists of four major steps. **Hazard identification**, describes the type of adverse effect associated with the agent using existing scientific literature. **Dose-response assessment** determines the relationship between the amount of exposure and the probability of the adverse effect. For effects in human populations such as cancer, the outcome is expressed as the probability of developing cancer associated with a given exposure level over a lifetime. Most regulatory agencies consider lifetime cancer risks in the range of one in one million to one in one hundred thousand as being "essentially negligible". For other effects such as developmental effects, neurotoxicity or weight loss, the dose-response information is used to develop an exposure level below which adverse effects are not expected to occur. In **exposure assessment**, the concentration, frequency, duration and route of exposure of the organism to the agent are determined. In **risk characterization**, Ontario-specific or relevant exposure and dose-response information are used to characterize the nature and magnitude of the risk in the province. The risks to the general population or segments of the population of greatest concern are determined, including an assessment of the uncertainties associated with those estimates. Risk assessment may be undertaken at a provincial level or at a local level, depending on the nature of the problem that is being assessed.

(3) Risk Management

Setting a standard is a risk management policy decision which integrates information from the risk assessment (i.e. potential for adverse effects as well as any measures of uncertainty) with economic and technical feasibility considerations. It is recognized that adverse effects may be associated with very low levels of some contaminants. Where implementation of a proposed standard would require significant costs to achieve, cost-benefit issues are assessed in setting the standard. This information is used to develop implementation options for the standard. Risk management analyses are used in setting province-wide standards (e.g. air and drinking water standards) and consider all major sources of environmental releases. Risk management analyses are also used in applying a standard on a site-specific basis (e.g. application of surface water quality objectives after considering site-specific and local source characteristics). Public consultation is part of the risk management process.

Risk management considerations in MOEE's environmental standard-setting process are intended to provide for flexibility, fairness, economic efficiency, and effectiveness in achieving environmental protection goals and do not prescribe how regulated sectors will meet the standards.

(4) Consultation

The ministry is placing The Three Year Plan for Standard-Setting on the Environmental Bill of Rights (EBR) Registry, to provide the public the opportunity to comment on the document. Regular updates will also be placed on the EBR Registry.

When setting individual standards formal public consultation is required and the proposed standard is placed on the EBR Registry for public comments. These comments are considered and the standard is revised where appropriate. Notice of the final standard, a summary of the comments received and actions taken with respect to the comments are placed on the EBR Registry as required, in a Notice of Decision.

PART B

THREE YEAR PLAN FOR STANDARD-SETTING

To set priorities and co-ordinate standard-setting activities, MOEE prepared a standard-setting Plan for discussion and comment. The Plan, in the form of a summary list is provided at the end of this document. The summary list outlines the candidate chemicals from which substances will be selected for standards development over the next three years. Chemicals are categorized by type of standard (ie air, drinking water etc) and listed alphabetically within the category. As can be seen on the list, a number of standards are already under development, while others are to be initiated.

COMMENTS SOUGHT FROM STAKEHOLDERS

An electronic version of the Plan was posted on the Ministry's Environmental Bill of Rights (EBR) Registry and also on its WEB site from October 10, 1996 to December 9, 1996 for public comments. The Ministry specifically requested comments on the following:

- Are there other more important priority substances for new or revised standards? Why? (A list of current standards is available upon request at address noted below).
- Would you like to be a partner in the development of any of these standards? This could include submission of relevant scientific literature or studies, preparing and submitting expert reviews of relevant information in accordance with the Ministry's standards development procedures, and undertaking peer review of Ministry documents.
- Are you aware of other information or other considerations that MOEE should take into account in establishing the plan or in setting specific standards?
- Any other comments or suggestions?

FUTURE CONSIDERATIONS

It is proposed that the Three Year Plan will be updated and published annually. Parties expressing interest in specific standards will be contacted during the development of that specific standard.

For further information contact:

Standards Development Branch
Ontario Ministry of Environment and Energy
135 St. Clair Ave. West
Toronto, Ontario, Canada
M4V 1P5
Phone: (416)-323-5095 Fax: (416)-323-5166

LIST OF STANDARDS IN PROGRESS

AIR

Acetaldehyde ✓
 Acetonitrile
 Acrylonitrile
 Ammonia
 Arsenic ✓
 1,3-Butadiene
 Cadmium ✓
 Carbon tetrachloride ✓
 Carbon monoxide
 Chlorine
 Chloroform
 Chromium VI ✓
 Cyclohexane
 1,2-Dichloroethane ✓
 1,4-Dichlorobenzene ✓
 1,1-Dichloroethylene (Vinylidene chloride)
 Dioxins
 Ethylbenzene
 Ethyl ether
 Fluorides (HF)
 Formaldehyde ✓
 Heptane ✓
 Hexane
 Hydrogen chloride
 Inhalable particulates: ✓ PM10, 2.5
 Isopropyl benzene (cumene)
 Methanol
 Methylene chloride ✓
 Methyl ethyl ketone
 Methyl isobutyl ketone
 Mineral spirits
 Nickel ✓
 Ozone
 PAH
 Propylene oxide
 Styrene ✓
 Tetrachloroethylene ✓
 Toluene
 Total reduced sulphur ✓
 Trichloroethylene ✓
 Xylene (mixed isomers)
 Uranium

DRINKING WATER

Aldicarb ✓
 Aluminum
 Antimony
 Arsenic
 Bacteriological quality
 Bromate
 Chloramines ✓
 Cyanide ✓
 1,1-Dichloroethylene ✓ (Vinylidene chloride)
 Fluoride
 Formaldehyde

DRINKING WATER (cont.)

Lindane ✓
 Microcystin-LR
 Protozoa (cryptosporidium, giardia)
 Radionuclides ✓
 Temephos ✓
 Tetrachloroethylene ✓ (Perchloroethylene)
 Total dissolved solids ✓
 Triallate ✓
 Tritium ✓
 Uranium
 Viruses

SURFACE WATER

Arsenic ✓
 Benzene ✓
 Cadmium ✓
 Carbaryl ✓
 Chlorobenzenes ✓
 Chlorophenols ✓
 Chromium
 Dioxins/furans ✓
 Inorganic lead
 N-Nitrosodimethylamine
 PAH ✓
 Vanadium

SOIL

Guidelines for management of excess soil¹

¹ Contact Standards Development Branch for complete list of chemicals

✓ - scheduled for completion in 1997.

THREE YEAR PLAN CANDIDATE SUBSTANCES
FOR STANDARDS DEVELOPMENT 1996-99

AIR

Acetone
Acetonitrile
Acrolein
Aliphatic polyisocyanate
Asbestos
Benzene
Butanol, n-
Carbon dioxide
Cyclohexanone
Diethylamine
Diethylene glycol monobutyl ether
Diethylene glycol monobutyl ether acetate
Diethylene glycol monoethyl ether
Diethylene glycol monoethyl ether acetate
Dimethylamine
Dimethyl adipate
Dimethyl glutarate
Dimethyl succinate
Dimethyl ethanolamine
Dimethyl formamide
Dipropylene glycol methyl ether
Ethanolamine
Ethylene
Ethylene glycol
Ethylene glycol butyl ether
Ethylene glycol butyl ether acetate
Ethylene glycol ethyl ether
Ethylene glycol ethyl ether acetate
Ethylene glycol monohexyl ether
Ethylene glycol monopropyl ether
Hexyl acetate
Isobutyl acetate
Isopropyl acetate
Isopropyl alcohol
Limonene
MMT
Manganese compounds

AIR (cont.)

2-Methoxyethanol
1,2,4-Methylbenzene
Methyl n-propyl ketone
Morpholine
N-Nitrosodimethylamine (NDMA)
Nitrocellulose
Nitrogen oxides
Pantanediol monoisobutyrate
Pentyl propionate, n-
Propionaldehyde
Propyl alcohol
Propylene glycol methyl ether
Propylene glycol methyl ether acetate
Quinoline
Sulphur dioxide
Sulphur hexafluoride
Sulphuric acid
Total VOCs
Total hydrocarbons
Triethylamine
Uranium
Vinyl acetate
Vinyl chloride

Italics - out of date, review for possible revision

**THREE YEAR PLAN CANDIDATE SUBSTANCES
FOR STANDARDS DEVELOPMENT 1996-99**

DRINKING WATER

Beryllium
Bismuth
Cadmium
Chlorine
[(4-chloro-o-tolyl)oxy]acetic acid (MCPA)
Cobalt
Copper
Dichloroprop
EDTA
Manganese
Mercury and methyl mercury
Nickel
Organotins
Total petroleum hydrocarbons
1,1,1 Trichloroethane
Trichloroethylene

SURFACE WATER

Ammonia & nitrates
Chlorine
Copper
Cyanide
Dissolved oxygen
Fluoride
Hexachlorobutadiene
Mercury
Phosphorus
Phthalates
Selenium
Substituted phenols and phenol
Suspended solids
Temperature
Total dissolved solids
Xylene
Zinc

AQUATIC SEDIMENT

Barium
Dioxins/furans
Selenium
1,2,4-Trichlorobenzene
1,3,5-Trichlorobenzene

TISSUE RESIDUE

Dioxins/furans
Mercury
Mirex
PAH
PCB
Toxaphene

COMPOST

Arsenic
Cadmium
Cobalt
Chromium
Copper
Mercury
Molybdenum
Nickel
Lead
Selenium
Zinc

Italics - out of date, review for possible revision

STANDARDS COMPLETED¹ BY SDB IN FY 1995/96AIR

Lead

DRINKING WATER

Lead

Trihalomethanes (THMs)
TritiumSURFACE WATERAniline
Antimony
Dinitrotoluenes
Cobalt
Hexachlorocyclopentadiene
Hexachloroethane
Molybdenum
ThalliumSOIL and GROUND WATER
(DECOMMISSIONING)1,1,1,2-Tetrachloroethane
1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethylene
1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
1,2-Dichloroethane
1,2-Dichloroethylene (cis-)
1,2-Dichloroethylene (trans-)
1,2-Dichloropropane
1,3-Dichlorobenzene
1,3-Dichloropropene
1,4-Dichlorobenzene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2-Chlorophenol
2-Methylnaphthalene
3,3-Dichlorobenzidine
4-Chloroaniline
Acenaphthene
Acenaphthylene
Acetone
Aldrin
Anthracene
Antimony
Arsenic
Barium
Benz[a]anthracene
Benzene
Benz[a]pyrene
Benz[b]fluoranthene
Benz[g,h,i]perylene
Benz[k]fluoranthene
Beryllium (and its Compounds)
Biphenyl
bis(2-Chloroisopropyl) ether
bis(2-Chloroethyl)etherbis(2-Ethylhexyl) phthalate
Boron
Bromodichloromethane
Bromoform
Bromomethane
Cadmium (and its Compounds)
Carbon tetrachloride
Chlordane
Chlorobenzene
Chlorodibromomethane
Chloroform
Chromium (and its Compounds)
Chrysene
Cobalt (and its Compounds)
Copper (and its Compounds)
Cyanides (ionic)
DDD
DDE
DDT
Dibenzo[a,h]anthracene
Dieldrin
Diethyl phthalate
Dimethyl phthalate
Dioxins/Furans
Endosulfan
Endrin
Ethylbenzene
Ethylene dibromide
Ethylene glycol
Fluoranthene
Fluorene
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclohexane
(gamma isomer) (Lindane)
Hexachloroethane
Indeno[1,2,3-cd]pyrene
Lead (and its Compounds)
Mercury (and its Compounds)
Methoxychlor
Methyl ethyl ketone
Methyl isobutyl ketone
Methyl mercury
Methyl tert-butyl ether
Methylene chloride
Molybdenum
Naphthalene
Nickel (and its Compounds)
Oil and grease
PCBs
PentachlorophenolPetroleum hydrocarbons
(gas/diesel)
Petroleum hydrocarbons (heavy oils)
Phenanthrene
Phenol
Pyrene
Selenium (and its Compounds)
Silver (and its Compounds)
Styrene
Tetrachloroethylene
Thallium
Toluene
Trichloroethylene
Vanadium
Vinyl chloride
Xylene (mixed isomers)
Zinc (and its Compounds)INCINERATOR EMISSION
GUIDELINES²Cadmium
Dioxins
Hydrochloric acid
Lead
Mercury
Nitrogen dioxide
Sulphur dioxide¹ - Completed indicates that the proposed standard has been placed on the EBR registry for public review.² - In partnership with Science and Technology Branch

CHEMICALS SCHEDULED FOR AIR STANDARDS DEVELOPMENT BETWEEN 1995 AND 1999

CHEMICAL	CAS NUMBER	CONCERN	REGULATORY STATUS	START DATE	COMPLETION OF ASSESSMENT/ DOCUMENTATION READY FOR CONSULTATION	MODE OF DEVELOPMENT	STAGE OF DEVELOPMENT	COMMENTS
Acetaldehyde	75-07-0	Health		1996	1996	Adopt	PreEBR Consultation	EBR Placement by April 1997
Arsenic	7440-38-2	Health	337	1996	1996	Inhouse	PreEBR Consultation	EBR Placement by April 1997
Cadmium	7440-43-9	Health	S,337,346	1996	1996	Adopt	PreEBR Consultation	EBR Placement by April 1997
Carbon tetrachloride	56-23-5	Health	IS	1996	1996	Adopt	PreEBR Consultation	EBR Placement by April 1997
Chromium VI	7440-47-3	Health		1996	1996	Adopt	PreEBR Consultation	EBR Placement by April 1997
Cyclohexane	110-82-7	Health	IS	1996	1996	Adopt	PreEBR Consultation	EBR Placement by April 1997
1,2-Dichloroethane	107-06-2	Health	IS	1996	1996	Adopt	PreEBR Consultation	EBR Placement by April 1997
1,4-Dichlorobenzene	106-46-7	Health	IS	1996	1996	Adopt	PreEBR Consultation	EBR Placement by April 1997
Formaldehyde	50-00-0	Health Odour	346	1996	1996	Adopt	PreEBR Consultation	EBR Placement by April 1997
Methylene Chloride	75-09-2	Health	IS	1996	1996	Adopt	PreEBR Consultation	EBR Placement by April 1997
Nickel and its compounds	7440-02-0	Health Vegetation	S,337,346	1996	1996	Inhouse	PreEBR Consultation	EBR Placement by April 1997
Styrene	100-42-5	Health Odour	S, 346	1996	1996	Adopt	PreEBR Consultation	EBR Placement by April 1997

S: IS=INTERIM STANDARD, S=STANDARD, 346=REGULATION 346 OF ENVIR. PROT. ACT., 337=REGULATION 337 OF ENV. PROT. ACT(RRO 1990)

D=PRE -CONSULTATION DRAFT COMPLETED. ITALICS=WORK CURRENTLY UNDERWAY. CAS=CHEMICAL ABSTRACTS SERVICE REGISTRY.

CHEMICAL	CAS NUMBER	CONCERN	REGULATORY STATUS	START DATE	COMPLETION OF ASSESSMENT/ DOCUMENTATION READY FOR CONSULTATION	MODE OF DEVELOPMENT	STAGE OF DEVELOPMENT	COMMENTS
Tetrachloroethylene	127-18-4			1996	1996	Adopt	PreEBR Consultation	EBR Placement by April 1997
Trichloroethylene	79-01-6	Health	S, 346	1996	1996	Adopt	PreEBR Consultation	EBR Placement by April 1997
Total Reduced Sulphur		As H ₂ S Odour	As H ₂ S IS, 337,346		1996	Inhouse	PreEBR Consultation	EBR Placement by April 1997
Acetonitrile	75-05-8	Health		1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Acrylonitrile	107-13-1	Health	IS	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Ammonia	7664-41-7	Odour	S, 346	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Chlorine	7782-50-5	Health Vegetation	S, 346	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Chloroform	67-66-3	Health	IS	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Ethylbenzene	100-41-4	Odour	S, 346	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Ethyl ether	60-29-7	Odour	IS	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Hexane	110-54-3	Health	IS	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Hydrogen chloride	7647-01-0	Corrosion	S, 346	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Isopropyl benzene (cumene)	98-82-8	Odour	IS	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Methanol	67-56-1	Health	S, 346	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997

CHEMICAL	CAS NUMBER	CONCERN	REGULATORY STATUS	START DATE	COMPLETION OF ASSESSMENT/ DOCUMENTATION READY FOR CONSULTATION	MODE OF DEVELOPMENT	STAGE OF DEVELOPMENT	COMMENTS
Methyl ethyl ketone	78-93-3	Odour	S, 346	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Methyl isobutyl ketone	108-10-1	Odour	IS	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Mineral spirits	8052-41-3	Odour	IS	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Propylene oxide	75-56-9	Health	IS	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Toluene	108-88-3	Odour	S, 346	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Vinylidene chloride	75-35-4	Health	IS	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Xylene (mixed isomers)	1330-20-7	Odour	S, 346	1997	1997	Adopt	Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Uranium (metal)	7440-61-1	Health		1997	1997	Adopt	Bryan Leece Coordinating Information Gathering via Contract	Pre-EBR Consultation Draft Expected By September 1997
Inhalable particulates: PM10, 2.5		Health	Suspended Part. Matter in 337,346	1995	1997	Federal/Prov. Air Qual. Working Group	Akos coordinating	Smog Plan Commitment For End Of 1997
Carbon monoxide	630-08-0	Health	S, 337,346	1995	1997	Federal/Prov. Air Qual. Working Group	Akos Coordinating	
Ozone	10028-15-6	Health	S, 337,346	1995	1997	Federal/Prov. Air Qual. Working Group	Akos and Ron Pearson Coordinating	
1,3 Butadiene	106-99-0	Health		1996	1998	Fed/Prov.	Needs to be Placed on National List	

CHEMICAL	CAS NUMBER	CONCERN	REGULATORY STATUS	START DATE	COMPLETION OF ASSESSMENT/ DOCUMENTATION READY FOR CONSULTATION	MODE OF DEVELOPMENT	STAGE OF DEVELOPMENT	COMMENTS
Diethylene glycol monobutyl ether	112-34-5	Health	24h-AAQC	1997	1998		Under SDB review to determine how to proceed and timing	
Diethylene glycol monobutyl ether acetate	124-17-4	Health	24hr-AAQC	1997	1998		Under SDB review to determine how to proceed and timing	
Diethylene glycol monoethyl ether	111-90-0	Odour	IS	1997	1998		Under SDB review to determine how to proceed and timing	
Diethylene glycol monoethyl ether acetate	112-12-5	Health	24hr-AAQC	1997	1998		Under SDB review to determine how to proceed and timing	
Dimethyl Formamide	68-12-2	Health		1997	1998		Under SDB review to determine how to proceed and timing	
Dipropylene glycol methyl ether	34590-94-8	Health Irritation		1997	1998		Under SDB review to determine how to proceed and timing	
Ethylene glycol	107-21-1	Health	24hr-AAQC	1997	1998		Under SDB review to determine how to proceed and timing	
Ethylene glycol butyl ether	111-76-2	Health Odour	IS	1997	1998		Under SDB review to determine how to proceed and timing	
Ethylene glycol butyl ether acetate	112-07-2	Health Odour	IS	1997	1998		Under SDB review to determine how to proceed and timing	
Ethylene glycol ethyl ether	110-80-5	Health Odour	IS	1997	1998		Under SDB review to determine how to proceed and timing	
Ethylene glycol ethyl ether acetate	111-15-9	Health Odour	IS	1997	1998		Under SDB review to determine how to proceed and timing	
Ethylene glycol monohexyl ether	112-25-4	Health	24hr-AAQC	1997	1998		Under SDB review to determine how to proceed and timing	
Ethylene glycol monopropyl ether	2807-30-9	Health		1997	1998		Under SDB review to determine how to proceed and timing	

CHEMICAL	CAS NUMBER	CONCERN	REGULATORY STATUS	START DATE	COMPLETION OF ASSESSMENT/ DOCUMENTATION READY FOR CONSULTATION	MODE OF DEVELOPMENT	STAGE OF DEVELOPMENT	COMMENTS
2-Methoxyethanol (Ethylene glycol monomethyl ether)	109-86-4	Health		1997	1998		Under SDB review to determine how to proceed and timing	
Propylene glycol methyl ether	107-98-2	Odour	IS	1997	1998		Under SDB review to determine how to proceed and timing	
Propylene glycol methyl ether acetate	108-65-6	Odour	IS	1997	1998		Under SDB review to determine how to proceed and timing	
Vinyl chloride	75-01-4	Health	IS	1997	1998		Under SDB review to determine how to proceed and timing	
Manganese and its compounds including MMT	7439-96-5	Health	IS	1997	1999	Inhouse	Scott Fleming Coordinating	
Acetone	67-64-1	Health	S, 346	1997	1999		Under SDB review to determine how to proceed and timing	
Acrolein	107-02-8	Health	IS	1998	1999	Fed/Prov PSL	Under SDB review to determine how to proceed and timing	
Benzene	71-43-2	Health		1998	1999	Fed/Prov	Under SDB review to determine how to proceed and timing	
Beryllium and compounds	7440-41-7	Health	S, 346	1998	1999		Under SDB review to determine how to proceed and timing	
Dioxins	7664-39-3	Health		1998	1999	Fed/Prov	Under SDB review to determine how to proceed and timing	
Heptane	142-82-5	Health		1998	1999		Will commence based on information gathered for Hexane	
Mercury	7439-97-6	Health	S, 337	1998	1999		Under SDB review -linked with Toxics Plan	
1,2,4-triMethylbenzene	95-63-6	Health		1998	1999		Under SDB review -linked with Toxics Plan	

CHEMICAL	CAS NUMBER	CONCERN	REGULATORY STATUS	START DATE	COMPLETION OF ASSESSMENT/ DOCUMENTATION READY FOR CONSULTATION	MODE OF DEVELOPMENT	STAGE OF DEVELOPMENT	COMMENTS
Nitrogen oxides	10102-44-0	Health	NO _x , S, 337,346	1998	1999	Fed/Prov	Akos to recommend options	
N-Nitrosodimethylamine (NDMA)	62-75-9	Health		1998	1999		Brendan to review and recommend options	
PAH		Health		1998	1999	Fed/Prov	Needs to be placed on National List	
Quinoline	91-22-5	Health Irritation		1998	1999		Under SDB review to determine how to proceed and timing	
Sulphuric acid	7664-93-9	Corrosion	346	1998	1999		Under SDB review to determine how to proceed and timing	
Sulphur dioxide	7446-09-5	Health Vegetation	S, 337, 346	1998	1999	Fed/Prov	Akos to recommend options	
Sulphur hexafluoride	2551-62-4	Health	337 as HF	1998	1999		Under SDB review to determine how to proceed and timing	
Total hydrocarbons (or subgroups)		Health		1998	1999	Fed/Prov	Akos to recommend options	
Total VOCs (or subgroups)		Health		1998	1999		Under SDB review to determine how to proceed and timing	
Vinyl acetate	108-05-4			1997	1999		Under SDB review to determine how to proceed and timing	
Asbestos		Health	IS	1999	1999			
Aliphatic Polyisocynate	28182-81-2							
Butanol,n-	71-36-3	Odour	IS					
Carbon Dioxide	124-38-9							
Cyclohexanone	108-94-1	Health	IS					
Diethylamine	109-89-7	Health, Odour						

CHEMICAL	CAS NUMBER	CONCERN	REGULATORY STATUS	START DATE	COMPLETION OF ASSESSMENT/ DOCUMENTATION READY FOR CONSULTATION	MODE OF DEVELOPMENT	STAGE OF DEVELOPMENT	COMMENTS
Dimethylamine	124-40-3	Health, Odour						
Dimethyl adipate	627-93-0							
Dimethyl glutarate	1119-40-0							
Dimethyl succinate	106-65-0							
Dimethyl ethanolamine	108-01-0							
Ethanolamine	141-43-5							
Ethylene	74-85-1	Vegetation						
Hexyl acetate	142-92-7							
Isobutyl acetate	110-19-0	Odour	IS					
Isopropyl acetate	108-21-4	Odour	IS					
Isopropyl alcohol	67-63-0							
Limonene	138-86-3							
Methyl n-propyl ketone	107-87-9							

CHEMICAL	CAS NUMBER	CONCERN	REGULATORY STATUS	START DATE	COMPLETION OF ASSESSMENT/ DOCUMENTATION READY FOR CONSULTATION	MODE OF DEVELOPMENT	STAGE OF DEVELOPMENT	COMMENTS
Morpholine	110-91-8							
Nitrocellulose	9004-70-7							
Pantanediol monoisobutrate	25265-77-4							
Pentyl propionate, n-	624-54-4							
Propionaldehyde	123-38-6	Odour	IS					
Propyl alcohol	71-23-8	Health	IS					
Triethylamine 121-44-8								

APPENDIX C

Expert Advice Database

* UPDATED TO INCLUDE
REQUESTS IN PROCESS AND

ON-HOLD RECEIVED
FEB. 27 TO APRIL 1996

SDB EXPERT ADVICE TRACKING REPORT



**FISCAL YEAR 1996-97
(TO MARCH 19, 1997)**

Standards Development Branch

Expert Advice Tracking Summary Statistics

Requests Completed in FY 1996-97 to date, April 1/96 through March 6/97	52
Requests In Progress	51
Requests Held Pending Client Response	21
Unassigned Requests	2

Requests To Date in FY 1996-97 By Selected Client Groups

Operations Division - Total	32
- Regional & District Offices	22
- Investigations and Enforcement Branch	5
- Approvals Branch	4
- Spills Action Centre	1
Science and Technology Branch	12
Legal Services Branch	7
Public	4
Environmental Monitoring and Reporting Branch	4
Program Development Branch	2
Industry	2
Intergovernmental Relations Office	1
Environmental Commissioner's Office	1
Ontario Provincial Police	1
Regional Conservation Authorities	1
Public Health	1

Expert Advice Listing Descriptive Report
Requests Completed in Fiscal Year 1996-97 (to March 6, 1997)

<u>CODE LEAD PERSON</u>	<u>CLIENT RECEIVED REQUIRED</u>		
245 Doug Spry SUPPORT REQUIRED: Jim Smith, Glenn Rutherford, Adam Socha TITLE OF REQUEST: ethanol Spill into Duffin's Creek DESCRIPTION: large spill of methyl alcohol into Duffin's Creek. Provided expert advice on information re: degradation/volatilization rate in water, interim PWQO .2 mg/L for algae however 10 g/mL tolerated by fish and invertebrates. DAYS SPENT: 0.5 CREATED BY: SOCHAAD LAST EDITED: SOCHAAD	CR	03/04/96	03/04/96 C
247 Goff Jenkins SUPPORT REQUIRED: Adam Socha, Jim Smith TITLE OF REQUEST: methanol Spill into Duffin's Creek - Human Health Advice DESCRIPTION: 0,000 L methanol spilled into Duffin's Creek, Pickering. Health Canada issues 27 ppm provisional drinking water guideline. SDB review of health data indicates 27 ppm is protective. Ajax water intake closed but reopened; Toronto intakes may be closed if levels exceed 27 ppm. DAYS SPENT: 1.0 CREATED BY: SOCHAAD LAST EDITED: SOCHAAD	CR	04/04/96	04/04/96 C
250 Pavel Muller SUPPORT REQUIRED: TITLE OF REQUEST: Long Manufacturing, Oakville: Screening Level Risk Assessment - Review DESCRIPTION: Good report but problem with quality of reporting/documenting assessment process. Sensible recom'dtns. Keywords: screening risk assessment trichloroethylene vinyl chloride lead stream modelling estimated equation RSD if HEAST RMOS Long Oakville Kerr carcinogenic noncarcinogenic DAYS SPENT: 0.0 CREATED BY: SOCHAAD LAST EDITED: SOCHAAD	CR	09/04/96	17/05/96 C
253 Adam Socha SUPPORT REQUIRED: Goff Jenkins, Brendan Birmingham TITLE OF REQUEST: Request for information on toxicity of hexavalent chromium DESCRIPTION: In support of legal proceedings. Provided fact sheet from Canadian drinking water quality guidelines supporting documentation. Made clear that key point is that Cr(VI) is a human carcinogen if inhaled but not if ingested. DAYS SPENT: 0.1 CREATED BY: SOCHAAD LAST EDITED: SOCHAAD	LEGAL	10/04/96	10/04/96 C

Completed - p.2

257 Adam Socha
SUPPORT REQUIRED: MED 11/04/96 22/04/96 C
Goff Jenkins
TITLE OF REQUEST:
Potential Health Impacts of PVC Water Pipe and Sewage Pipe
DESCRIPTION:
Request for information from Toronto Board of Health. Replied that Health Canada is conducting a study of the extent of dibutyl tin leaching from PVC water pipes and will report back via Fed/Prov Drinking Water Subcommittee. Pilot study showed leaching in 1st three months of use.
DAYS SPENT: 0.2
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

258 Murray Dixon STB 23/04/96 09/05/96 C
SUPPORT REQUIRED:
TITLE OF REQUEST:
Highway 6 North, Freelton to Guelph, EA Document Phytotox. Review
DESCRIPTION:
Highway realignment will adversely affect significant areas of the natural environment incl. forests, wetlands and old field complex. Efforts were made to minimize damage. Need monitoring to identify and rectify adverse effects.
Highway 6 Guelph Freelton Hanlon Expressway woodlot
DAYS SPENT: 0.0
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

259 Adam Socha ENVCAN 23/04/96 23/04/96 C
SUPPORT REQUIRED:
TITLE OF REQUEST:
Covenant System for Environmental Protection in the Netherlands
DESCRIPTION:
Request for information on the "covenant" system used in the Netherlands. Non-legislated agreements are signed between industry sectors and the government on pollution prevention and pollution control. The covenants are expected to be followed-through on at risk of legislation.
DAYS SPENT: 0.1
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

260 Bill McIlveen STB 01/05/96 22/05/96 C
SUPPORT REQUIRED:
TITLE OF REQUEST:
Huron Co. Waste Management Master Plan EA Report - Phytotox. Review
DESCRIPTION:
KEYWORDS: Huron landfill leachate tile noise erosion stability buffer conifers wood thrushes
DAYS SPENT: 0.6
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

261 Bill McIlveen STB 03/05/96 24/05/96 C
SUPPORT REQUIRED:
TITLE OF REQUEST:
Ridge Landfill Expansion EA (Chatham), report review
DESCRIPTION:
Compl.13/5/96; fwd to STB 30/5/96. Report content general, little info related to terrestrial concerns eg lists of species. No assessment of potential impact on natural envt. Near an airport, potential bird problem re edible wastes. Agri drain may disperse contaminants offsite.
DAYS SPENT: 0.0

262 Bill McIlveen

SWR 03/05/96 31/05/96

C

SUPPORT REQUIRED:

Adam Socha (0.3d), Marius Marsh

TITLE OF REQUEST:

Fiberglas Canada Former Insulation Mfg Site, Scr.Level Risk Assessment

DESCRIPTION:

Reply To G.Szober, Sarnia D.O. Assessment of risk to terrestrial (non-plant), aquatic and human receptors is adequate. Phytotoxicity assessment needs work, many figures do not make sense. Overall conclusion of consultant may be appropriate. Keywords: boron borosilicate glass

DAYS SPENT: 0.0

CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

263 Adam Socha

LEGAL 16/05/96 17/05/96

C

SUPPORT REQUIRED:

TITLE OF REQUEST:

Technical Inquiries, ICI / Walpole Island Hearing

DESCRIPTION:

Requested information on why manganese was on BPOR Secondary Candidates List Group C (toxicity); manganese ODWO rationale; meaning of "hazardous substance" in the Blue Book; status of Bans, Phase-outs or Reductions candidate substances lists.

DAYS SPENT: 0.2

CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

265 Glenn Rutherford

PDB 07/05/96 21/05/96

C

SUPPORT REQUIRED:

TITLE OF REQUEST:

Canagagigue Creek Blue Book Policy 2 Deviation Request, Info Required

DESCRIPTION:

Canagagigue Creek Uniroyal Blue Book policy 2 deviation minimum information municipal aquifer discharge un-ionized ammonia

DAYS SPENT: 0.8

CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

266 Adam Socha

STB 10/05/96 14/05/96

C

SUPPORT REQUIRED:

Al Kuja

TITLE OF REQUEST:

Green Lane Landfill Site Expansion EA, St. Thomas

DESCRIPTION:

Environmental assessment April 1996 reports. Al Kuja had previously commented on the 1995 EA progress report (see EA229.96) & said site evaluation process was done correctly and the best site was selected. Therefore review of these reports are unnecessary unless the plans changed

DAYS SPENT: 0.1

267 Adam Socha

EMRB 21/05/96 22/05/96

C

SUPPORT REQUIRED:

TITLE OF REQUEST:

Relative Hazard Ranking of Top 30 NPRI Substances

DESCRIPTION:

Tested to provide quick relative ranking of the 30 highest emission volume I.I substances for screening and discussion purposes, according to human health hazard. Ordered the list according to inhalational and oral acute and subchronic toxicity to terrestrial species.

DAYS SPENT: 0.7

Completed - p.4

269 Marius Marsh, Adam Socha CR 23/05/96 24/05/96
SUPPORT REQUIRED:
TITLE OF REQUEST:
Clean-up Criteria, Mattel Site, Etobicoke
DESCRIPTION:
Consultant, GlobalTox, proposes using Massachusetts criteria rather than MOEE Table A interim clean-up criteria as groundwater at site is not used for domestic purposes. Until final guidelines are released options are to use Table A (potable) or do a site-specific risk assessment.
DAYS SPENT: 0.2
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

270 Scott Abernethy AB 12/05/96 21/05/96
SUPPORT REQUIRED:
TITLE OF REQUEST:
ICI Discharge E.A. Hearing, Walpole Island, St. Clair River
DESCRIPTION:
ICI applied for C. of A. to discharge holding pond water contaminated with gypsum leachate, salts and trace heavy metals to St. Clair River. Challenged by local citizens and Walpole Island First Nation. Keywords: mercury cadmium aluminum copper manganese arsenic bans phase-outs
DAYS SPENT: 40.0
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

271 Dino Manca SWR 29/05/96 31/05/96
SUPPORT REQUIRED:
Shalini Venkataramaiah
TITLE OF REQUEST:
Gasoline Vapour Discharge to Air near Chippewas of Sarnia Community
DESCRIPTION:
Discharge from Shell Apr. 14 to May 3 '96 of gasoline vapour. Adverse health effects reported by some community members. Peak concn 40 ppm. S. Venkataramaiah provided 160 ppm effects level; is this appropriate considering duration of exposure? Should there have been an evacuation?
DAYS SPENT: 0.0
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

272 Pavel Muller IND 31/05/96 31/05/96
SUPPORT REQUIRED:
Akos Szakolcai
TITLE OF REQUEST:
IARC Reclassification of Carbon Black as Group 2B, possible human carc
DESCRIPTION:
Teleconference with Columbian Chemicals, mfrs of carbon black; starting public info campaign re IARC reclassification of carbon black as Group 2B from 3. Agreed that PAH tightly adsorbed likely cause of activity of solvent extract, relevance questionable re exposure, not priority
DAYS SPENT: 1.0
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

281 Glenn Rutherford

AB 12/06/96 / /

C

SUPPORT REQUIRED:

Mark Bailey, Bill Gizyn

TITLE OF REQUEST:

Canada Metals Application for Review under EBR - comments

DESCRIPTION:

Comments on the EBR Application for Review Decision Summary 96EBR003.6, Canada Metals Certificates of Approval. Keywords: lead emissions smelting chlor foliage ambient air monitoring soil guideline South Riverdale blood migration

DAYS SPENT: 0.0

CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

282 Adam Socha

WCR 10/06/96 14/06/96

C

SUPPORT REQUIRED:

TITLE OF REQUEST:

N,N-dimethylformamide clean-up criteria request, Liquid Carbonic

DESCRIPTION:

John Cooke requested soil and groundwater clean-up criteria for this chemical, for which no ODWO is available. Attempted to find data needed to run model for generating criteria, but could not find Koc and Henry's Law constant. Proponent to develop/suggest criteria for review.

DAYS SPENT: 0.2

CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

283 Murray Dixon

STB 14/06/96 02/08/96

C

SUPPORT REQUIRED:

TITLE OF REQUEST:

Kapuskasing-Moonbeam Landfill Site EA

DESCRIPTION:

A review of the phytotoxicology and ecosystem sections of the EA for the Kapuskasing-Moonbeam Landfill.

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

292 Adam Socha

STB 09/07/96 09/07/96

C

SUPPORT REQUIRED:

TITLE OF REQUEST:

Request for information on the environmental toxicity of epinephrine

DESCRIPTION:

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

294 Bryan Leece

PUBL 24/06/96 / /

C

SUPPORT REQUIRED:

TITLE OF REQUEST:

Comment on SSRA Outline from Egmond Geospheric Associates Ltd

DESCRIPTION:

A request for guidance on the level of toxicological information required in a SSRA was received from Egmond Geospheric Associates Ltd.

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: SOCHAAD

Completed - p.6

298 Gary Westlake

PDB 01/06/96 30/06/96

SUPPORT REQUIRED:

TITLE OF REQUEST:

Review proposed project for Uniroyal site in Elmira

DESCRIPTION:

Received a request from Policy Development Branch to review a proposed project at the Uniroyal Elmira site

DAYS SPENT: 2.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

301 Adam Socha

SWR 09/07/96 / /

SUPPORT REQUIRED:

TITLE OF REQUEST:

Development of a Health Effects Criterion for Gasoline in Air

DESCRIPTION:

Difficult to develop a gasoline standard due to variable composition of gasoline, suggest dealing with components instead e.g. butane, pentane, heptane, hexane, ethylbenzene, benzene etc. U.S. state ambient air criteria are 3-30 ppm, may not be applicable here. See EA271.96 too

DAYS SPENT: 0.2

CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

302 Marius Marsh

STB 07/08/96 31/10/96

SUPPORT REQUIRED:

TITLE OF REQUEST:

Review of Radioactive Waste Disposal Site at Chalk River

DESCRIPTION:

Received a request from STB for comments on the AECB radioactive waste site at Chalk River. Complaints of chemical and radionuclide release through ground water. AECB is seeking permission to expand the site to its full capacity. Request review of tritium values.

DAYS SPENT: 1.5

CREATED BY: LEECEBR LAST EDITED: LEECEBR

304 Brendan Birmingham

LEGAL 02/08/96 19/08/96

SUPPORT REQUIRED:

TITLE OF REQUEST:

Expert Advice for Appeal Hearing for Lang Leather in Kitchener

DESCRIPTION:

Request for expert witness at an appeal hearing into a Directors Order for clean-up of the Lang Leather site in Kitchener. A number of compounds, including PCBs and transformers were found on site. In light of response, LGSB determined that a witness appearance was not necessary.

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: SOCHAAD

305 Doug Spry

SAC 24/07/96 24/07/96

SUPPORT REQUIRED:

Adam Socha

TITLE OF REQUEST:

Chlorine Spill for Ontario Hydro in Pickering into Fish Farm

DESCRIPTION:

An internal spill of hypochlorite at Ontario Hydro in Pickering was released in cooling water. The water is used by an adjacent fish farm. The chloride in the cooling water resulted in a fish kill at the fish farm. Not a human health issue but significant aquatic tox issue.

DAYS SPENT: 0.0

306 Bill McIlveen STB 12/08/96 11/09/96 C
SUPPORT REQUIRED:
TITLE OF REQUEST:
North Renfrew Waste Management Planning EA
DESCRIPTION:
Review of the phytotoxicology section of the North Renfrew Waste Management Planning EA
DAYS SPENT: 0.3
CREATED BY: LEECEBR LAST EDITED: LEECEBR

308 Christine Neville PUBL 21/08/96 26/08/96 C
SUPPORT REQUIRED:
TITLE OF REQUEST:
Request for information on the aquatic toxicity of aluminum
DESCRIPTION:
Enquiries on the aquatic toxicity of Aluminum from Fraser Paper (Thorold) and the Dept. of Indian and Northern Affairs (N.W.T.). Both enquiries were for toxic data on Al levels which were much higher than those tested for by MOEE.
DAYS SPENT: 2.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

309 Stuart Bailey IEB 23/08/96 30/09/96 C
SUPPORT REQUIRED:
TITLE OF REQUEST:
Release of methyl and ethyl mercaptan from a pulp mill in Fort Frances
DESCRIPTION:
Request from IEB for help in the preparation of a possible prosecution of a mill in Fort Frances. Plume of methyl and ethyl mercaptans went over a lake for some period. Occupants complained of nausea. IEB needs to know if this is consistent with exposure to mercaptans
DAYS SPENT: 0.5
CREATED BY: LEECEBR LAST EDITED: LEECEBR

314 Bryan Leece LEGAL 19/09/96 24/10/96 C
SUPPORT REQUIRED:
TITLE OF REQUEST:
Review of Indoor Air Quality PCB Assessment at GE Power Systems
DESCRIPTION:
Request from Legal Services Branch to review an Indoor Air Quality Assessment for PCB in regard to the Ecologic/GE Power Systems
DAYS SPENT: 0.5
CREATED BY: LEECEBR LAST EDITED: LEECEBR

317 Doug Spry IEB 04/10/96 04/10/96 C
SUPPORT REQUIRED:
TITLE OF REQUEST:
Request for information on Toxicity, Taste and Odour of #2 Fuel Oil
DESCRIPTION:
Request from Conrad Debarros (IEB?) for toxicity, taste and odour information on #2 Fuel oil.
DAYS SPENT: 0.5
CREATED BY: LEECEBR LAST EDITED: LEECEBR

Completed - p.8

319 Ron Pearson
SUPPORT REQUIRED:
TITLE OF REQUEST:
Assessment of effects of oil spill at Elizabeth Bruyere Health Centre
DESCRIPTION:
Request for technical assistance in assessing if a spill of furnace oil at the Elizabeth Bruyere Health Centre (Ottawa) led to any actual or likely adverse effects. There may be a requirement to testify. Response was that there is inadequate data to come to an opinion on this.
DAYS SPENT: 0.0
CREATED BY: LEECEBR LAST EDITED: SOCHAAD

321 Pavel Muller
SUPPORT REQUIRED:
TITLE OF REQUEST:
Request for advice on risk assessment of PAH
DESCRIPTION:
DAYS SPENT: 0.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

322 Angela Li-Muller
SUPPORT REQUIRED:
Marius Marsh
TITLE OF REQUEST:
SSRA Review for Royal Trust 460 Egerton Street London
DESCRIPTION:
Request from London District Office for review of SSRA for compliance drive clean-up at Royal Trust site at 460 Egerton Street London.
DAYS SPENT: 2.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

323 Pavel Muller, Angela Li-Muller ER 10/10/96 14/11/96
SUPPORT REQUIRED:
Rein Jaagumagi, David Rokosh
TITLE OF REQUEST:
Review of Environmental Site Assessment for Meyers Pier; Belleville
DESCRIPTION:
A request for a review of the Phase I-IV Environmental site assessment for the Meyers Pier project in Belleville.
DAYS SPENT: 0.0
CREATED BY: LEECEBR LAST EDITED: SOCHAAD

324 Adam Socha
SUPPORT REQUIRED:
Ron Pearson, Bev Thorpe
TITLE OF REQUEST:
Hazards to Wildlife of Lead Shot used over Non-Wetlands
DESCRIPTION:
Urgent request for briefing note for Deputy prior to CCME DM's Committee Meeting, requested by Ken Richards (IRO). PEI opposes ban on use of lead shot on land other than wetlands. Suggested response was that hazards are not limited to use over wetlands.
DAYS SPENT: 0.2
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

325 Glenn Rutherford SWR 25/09/96 01/10/96 C
SUPPORT REQUIRED:
Doug Spry, Scott Abernethy
TITLE OF REQUEST:
Request for advice on toxicity of trichlorotoluene
DESCRIPTION:
Request for advice on the toxicity of trichlorotoluene isomers from Doug
Ruber of SWR
DAYS SPENT: 0.5
CREATED BY: LEECEBR LAST EDITED: LEECEBR

326 Glenn Rutherford EMRB 09/10/96 15/10/96 C
SUPPORT REQUIRED:
TITLE OF REQUEST:
Request for use and manufacture info for a number of heavy metals
DESCRIPTION:
Request from Peter Kauss (EMRB) for use and manufacture information for a
number of heavy metals which were found in the Cole Drain in Sarnia.
DAYS SPENT: 0.1
CREATED BY: LEECEBR LAST EDITED: LEECEBR

327 Glenn Rutherford EMRB 22/10/96 23/10/96 C
SUPPORT REQUIRED:
Iraj Rahmani
TITLE OF REQUEST:
Request for use and Manufacture infor for trichloroethylene
DESCRIPTION:
Request from Peter Kauss (EMRB) for use an manufacture information on
trichloroethylene
DAYS SPENT: 0.2
CREATED BY: LEECEBR LAST EDITED: LEECEBR

328 Dave McLaughlin ER 01/10/96 28/10/96 C
SUPPORT REQUIRED:
TITLE OF REQUEST:
AECB Proposals for Enhanced Environmental Monitoring of Cameco
DESCRIPTION:
A request for review of AECB's Proposals ofr Enhanced Environmental
Monitoring Program for the Cameco Port Hope Facility.
DAYS SPENT: 0.5
CREATED BY: LEECEBR LAST EDITED: LEECEBR

329 John Miller STB 21/11/96 25/11/96 C
SUPPORT REQUIRED:
Adam Socha
TITLE OF REQUEST:
Amount of mercury-containing pesticide used in Ontario annually
DESCRIPTION:
Request from Greg Mierle (STB Dorset), to help in his mercury exposure
assessment work
DAYS SPENT: 0.0
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

Completed - p.10

332 Richard Aucoin CR 10/07/96 / /
SUPPORT REQUIRED:
TITLE OF REQUEST:
Chlorobenside clean-up criterion
DESCRIPTION:
Provision of advice to MOEE Halton-Peel area supervisor re: appropriateness
of soil clean-up criterion for the pesticide chlorobenside developed by
CanTox Inc. for a site at 70 Wesley Ave., Oakville.
DAYS SPENT: 0.0
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

334 Pavel Muller 17/01/97 17/01/97
SUPPORT REQUIRED:
TITLE OF REQUEST:
Breifing note for Manganese
DESCRIPTION:
DAYS SPENT: 0.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

335 Adam Socha IND 20/01/97 20/01/97
SUPPORT REQUIRED:
TITLE OF REQUEST:
Forsythe Lubricants - Glycol-based Hydraulic Fluid for Forestry
DESCRIPTION:
Received request for information on Ministry policy on spills of hydraulic fluids in the bush.
DAYS SPENT: 0.0
CREATED BY: LEECEBR LAST EDITED: SOCHAAD

337 Stuart Bailey 09/01/97 06/02/97
SUPPORT REQUIRED:
TITLE OF REQUEST:
Request for Review of 2 Air Cerificates for Ontario Hydro
DESCRIPTION:
Review of 2 air certificates for Hydro to operate a flare stack at the Bruce Heavy Water Plant. Concern centers around HS and SO2 emissions. Request is to evaluate tox info to see if changes to the air standard are warranted.
DAYS SPENT: 0.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

339 Ron Pearson, Al Kuja

ER 18/12/96 16/01/97

C

SUPPORT REQUIRED:

FILE OF REQUEST:

Review of proposed criterion for THP for Ecole Maimonides, Nepean On
DESCRIPTION:

Request from Easter Region to review a proposed criterion ofr THP in
non-potable ground water for Ecole Maimonides, 256 Esquimault Drive, Nepean
Ont.

AYS SPENT: 5.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

341 Akos Szakolcai

AB 19/10/96 20/10/96

C

SUPPORT REQUIRED:

FILE OF REQUEST:

Comment of Affidavit of Dr. Pengelly re SO2

DESCRIPTION:

Request from Approvals Branch for comment on affidavit from Dr.
Pengelly/Petro Canada re SO2

AYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

350 Bryan Leece

CR 19/02/97 24/02/97

C

SUPPORT REQUIRED:

FILE OF REQUEST:

Review of TEDCO Management strategy for Port Area Lands

DESCRIPTION:

Request from Central Region for review of the Soil and Ground Water
Management Strategy for the TEDCO Lands in the Port Area. Request for comment
on the basic approach and on the levels of risk used.

AYS SPENT: 0.5

CREATED BY: LEECEBR LAST EDITED: LEECEBR

Expert Advice Listing Descriptive Report
Requests In Progress to Date (March 1997)

<u>IN CODE LEAD PERSON</u>	<u>CLIENT RECEIVED REQUIRED</u>	
77 JOHN LEE SUPPORT REQUIRED: David Poirier (2 d), David Rokosh (33 days) TITLE OF REQUEST: CROWN VS. POLYSAR EXPERT TESTIMONY ON DISCHARGE OF BENZENE DESCRIPTION: PER REQUEST FROM IEB, ACUTE TOXICITY TESTS WERE CARRIED OUT ON BENZENE DISCHARGE AT POLYSAR IN 93. STAFF APPEARED AS EXPERT WITNESS ON THE POTENTIAL IMPACTS OF THE SPILL ON THE AQUATIC LIFE IN ST. CLAIR R. COURT'S DECISION WAS EXPECTED BY MARCH 1995, TRIAL RESCHEDULED TO 2/7/96 DAYS SPENT: 35.0 CREATED BY: DEO LAST EDITED: LEECEBR	IEB 01/06/94 16/02/96	I
114 Bryan Leece SUPPORT REQUIRED: Tom Fletcher, Dave Poirier (0.6 d) TITLE OF REQUEST: Review of Application of Dustblocs 170 & 635 as Dust Suppressants DESCRIPTION: Request from John Armiento to review the applications for Dustbloc 170 & 635 for use as dust suppressant materials in Ontario. Review and comment on the eco-toxicology and potential human health effects of these materials. Aquatic Tox Done Waiting for Human Tox. Dust Suppressants DAYS SPENT: 0.0 CREATED BY: LEECEBR LAST EDITED: LEECEBR	WRB 26/06/95 / /	I
149 Bryan Leece SUPPORT REQUIRED: TITLE OF REQUEST: Standard Development for Uranium Compounds in Air DESCRIPTION: Request for Eastern region through approvals branch for a standard for Uranium compounds in air. Originally assigned to Dino Manca DAYS SPENT: 0.0 CREATED BY: LEECEBR LAST EDITED: SOCHAAD	ER 27/07/95 / /	I
150 Scott Abernethy SUPPORT REQUIRED: Bryan Leece TITLE OF REQUEST: Sodium Silicate Application for Product Dust Suppressant Material DESCRIPTION: Review of product application for sodium silicate. Request for aquatic and human health effects reviews. Aquatic Tox Component is complete, Human tox component needs to be done. Dust Suppressants DAYS SPENT: 10.0 CREATED BY: LEECEBR LAST EDITED: LEECEBR	WRB 15/08/95 / /	I

In Progress - p.2

159 Bryan Leece

28/11/93 / /

I

SUPPORT REQUIRED:

Mike Salamone

TITLE OF REQUEST:

Request for Short Term Exposure Number for Vinyl Chloride

DESCRIPTION:

Staff in the Sarnia office have requested that a short term exposure limit for vinyl chloride be developed which would be based on a level where adverse effect could possibly occur. This limit would be used by Abatement in emergency situations to protect human health

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

164 Scott Fleming

CR / / / /

I

SUPPORT REQUIRED:

TITLE OF REQUEST:

Expert advice on Molybdenum in Soil Standard

DESCRIPTION:

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

165 Scott Fleming

NYPH / / / /

I

SUPPORT REQUIRED:

TITLE OF REQUEST:

Review of Lead Awareness Public Education Material

DESCRIPTION:

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

167 Gary Westlake

MNR 21/09/95 / /

I

SUPPORT REQUIRED:

TITLE OF REQUEST:

Expert Testimony On Fish Kill after Cl spill into Silver Creek

DESCRIPTION:

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

173 Dino Manca, Brendan Birmingham

/ / / /

I

SUPPORT REQUIRED:

Scott Abernethy (40 d)

TITLE OF REQUEST:

Incinerator/Landfill Comparison of Risks

DESCRIPTION:

S. Abernethy wrote "plain language" summary of comparative risk assessment (40 days) - completed.

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: SOCHAAD

174 Rein Jaagumagi

EMRB 27/09/95 / /

I

SUPPORT REQUIRED:

TITLE OF REQUEST:

Sediment and Biomonitoring Assessment of PCBs in Peterborough Area

DESCRIPTION:

DAYS SPENT: 0.0

175 Bryan Leece, Marius Marsh CR / / / / I
 SUPPORT REQUIRED:
 TITLE OF REQUEST:
 Tech advice on risk assessment for City of Toronto Coal Tar strategy
 DESCRIPTION:
 DAYS SPENT: 0.0
 CREATED BY: LEECEBR LAST EDITED: LEECEBR

201 Brendan Birmingham SWR 28/11/95 / / I
 SUPPORT REQUIRED:
 TITLE OF REQUEST:
 NDMA in Air - Chinook Chemical
 DESCRIPTION:
 Review air sampling data for NDMA and provide comments on possible health concerns.
 DAYS SPENT: 0.0
 CREATED BY: LEECEBR LAST EDITED: LEECEBR

208 Stuart Bailey IEB 19/12/95 / / I
 SUPPORT REQUIRED:
 TITLE OF REQUEST:
 Expert Advice Re: odours originating from Canac Kitchens
 DESCRIPTION:
 DAYS SPENT: 0.0
 CREATED BY: LEECEBR LAST EDITED: LEECEBR

209 Allen Kuja, Brendan Birmingham 14/12/95 / / I
 SUPPORT REQUIRED:
 TITLE OF REQUEST:
 SDB support for clean-up of Northern Wood Preservers, Thunder Bay
 DESCRIPTION:
 DAYS SPENT: 0.0
 CREATED BY: LEECEBR LAST EDITED: LEECEBR

226 Doug Spry PDB 22/01/96 / / I
 SUPPORT REQUIRED:
 Bryan Leece, David Poirier, David Rokosh
 TITLE OF REQUEST:
 Dustbloc 315 Application for Product Dust Suppressant Material
 DESCRIPTION:
 Review of aquatic and human health effects for product application as a dust suppressant.

See also #114 and #150

Dust Suppressants
 DAYS SPENT: 3.8
 CREATED BY: LEECEBR LAST EDITED: LEECEBR

237 Doug Spry LSB 01/01/95 / / I
 SUPPORT REQUIRED:
 Glyn Rutherford, Scott Abernethy
 TITLE OF REQUEST:
 Metal Concentrations in Surface Water; Significance to PWQO and MDL
 DESCRIPTION:
 DAYS SPENT: 5.0

In Progress - p.4

251 Ron Pearson (to assign) CR 10/04/96 / /

SUPPORT REQUIRED:

TITLE OF REQUEST:

Method for measuring total halogenated organics in soil, Philip Envtr.
DESCRIPTION:

Philip Environmental proposed measurement of only volatile chlorinated organics in petroleum-contaminated soil on basis that chlorophenols, chlorobenzenes and pesticides would not be present.

DAYS SPENT: 0.0

CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

255 Angela Li-Muller CR 17/04/96 / /

SUPPORT REQUIRED:

TITLE OF REQUEST:

Harkow Recycling, 85 Commissioners St. Risk Assessment report review
DESCRIPTION:

Document recently received (as of June 6/96), not urgent, on hold pending completion of higher-priority work.

DAYS SPENT: 0.0

CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

273 John Lee LEGAL 30/05/96 06/06/96

SUPPORT REQUIRED:

TITLE OF REQUEST:

Technical Advice, Crown vs Ethyl Canada, Ethylene Dibromide Spill

DESCRIPTION:

Provision of technical advice on toxicology while Ethyl's defence counsel presents their case. Spill of ethylene dibromide into St. Clair River.

DAYS SPENT: 0.0

CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

277 Angela Li-Muller CR / / / /

SUPPORT REQUIRED:

TITLE OF REQUEST:

Ashbridge's Bay, Toronto Environmental Assessment, Sludge Incineration

DESCRIPTION:

DAYS SPENT: 0.0

CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

280 Brendan Birmingham PBHLTH 06/06/96 31/07/96

SUPPORT REQUIRED:

TITLE OF REQUEST:

Environmental Contaminants & Implications for Child Health report revw
DESCRIPTION:

Review & comment on literature review report produced for the Canadian Institute of Child Health, contact person Kristin Underwood

DAYS SPENT: 0.0

CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

284 Murray Dixon STB 14/06/96 06/08/96 I
SUPPORT REQUIRED:
TITLE OF REQUEST:
West Nipissing Area Waste Management Master Plan
DESCRIPTION:
A review of the Draft Stage 2B/Stage 3 Reoprts for the West Nipissing Area
Municipalities Waste Management Master Plan
DAYS SPENT: 0.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

285 Murray Dixon STB 20/06/96 30/07/96 I
SUPPORT REQUIRED:
TITLE OF REQUEST:
EA Review of Highway 69 Route Planning Study
DESCRIPTION:
A review of the route planning study and environmental assessment for Highway
69 form north of highway 141 to north of secondary highway 559 (District 52
Huntsville). Review of Phytotoxicology.
DAYS SPENT: 2.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

289 Bill McIlveen STB 05/07/96 / / I
SUPPORT REQUIRED:
TITLE OF REQUEST:
Ridge Landfill Expansion Environmental Assessment
DESCRIPTION:
Review of the biological impact assessment appendix of the Ridge Landfill
Expansion Environmental Assessment.
DAYS SPENT: 0.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

290 John Lee EMRB 24/06/96 / / I
SUPPORT REQUIRED:
TITLE OF REQUEST:
Testing of PCB Bioavailability from caulking compounds
DESCRIPTION:
A request from EMRB to test the bioavialability of PCB from caulking
compounds to fish under controlled conditions. This is a follow-up to an
investigation which identified elevated PCB levels in juvenile fish
downstream from the G.Ross Lord Dam on the Don River
DAYS SPENT: 0.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

291 John Lee, Christine Neville IEB 15/06/96 / / I
SUPPORT REQUIRED:
Christine Neville (.15 days)
TITLE OF REQUEST:
Acute Toxicity testing with Alum (Aluminum sulphate)
DESCRIPTION:
A request from Bruce Foxton IEB Central region for actue tox testing on
aluminum sulphate. The results will form the basis of impairment if IEB
chooses to lay charges against Metro over a spill which occurred at the R.C.
Harris plant.
DAYS SPENT: 0.0

In Progress - p.6

293 Pavel Muller

HC / / 25/09/96

SUPPORT REQUIRED:

TITLE OF REQUEST:

Rev of OECD Test Guidelines for Percutaneous Absorption

DESCRIPTION:

A review of the OECD testing guidelines for evaluating percutaneous absorption. Comments are to be provided to Health Canada

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

297 Ken Flood

EMRB 01/03/96 / /

SUPPORT REQUIRED:

TITLE OF REQUEST:

Contribution of surface water or sediment PCB to fish.

DESCRIPTION:

Determination of the relative contributions of PCBs to fish from the surface water or sediment phases of the creek downstream from the G. Ross Lord Dam.

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

299 Gary Westlake

/ / / /

SUPPORT REQUIRED:

10 days to date with an additional 10 days to come

TITLE OF REQUEST:

Review documents of Aquatic Effects Program

DESCRIPTION:

Advised through a number of conference calls and reviews of documents for Aquatic Effects Program (AETE). This deals with selection of aquatic toxicity testing methods appropriate to mining in Canada

DAYS SPENT: 10.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

300 Gary Westlake

EC 04/07/96 / /

SUPPORT REQUIRED:

TITLE OF REQUEST:

Advice to environmental effects monitoring of pulp & paper subgroup

DESCRIPTION:

Advice to Environment Canada on the environmental effects monitoring for Pulp and Paper, toxicity sub-group

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

315 Bill McIlveen

STB / / 31/10/96

SUPPORT REQUIRED:

TITLE OF REQUEST:

Georgian Triangle Waste Management Master Plan

DESCRIPTION:

Review of Georgian Triangle Waste Management Master Plan for the towns of Collingwood, Wasaga Beach and Clearview. Stage 3 E.A. Overview Document. Focus on Phyto effects

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

336 Deo Persaud

03/01/97 / /

I

SUPPORT REQUIRED:

TITLE OF REQUEST:

Review of Sediment Levels in Two Federal Harbours in Lake of the Woods

DESCRIPTION:

Request to review and comment on the significance of contaminant levels in sediments which exceed current MOEE guidelines for two Federal harbour properties in the Kenora area.

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

340 Doug Spry Pavel Muller Al Kuja WRB 21/01/97 / /

I

SUPPORT REQUIRED:

TITLE OF REQUEST:

Review of Koch Materials emulsified asphalt as a dust suppressant

DESCRIPTION:

Request from WRB to review of human health/aquatic tox effects of emulsified asphalt product from Koch Materials for use as a dust suppressant.

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

342 Bill McIlveen, Dave Rokosh AB 06/02/97 28/02/97

I

SUPPORT REQUIRED:

TITLE OF REQUEST:

Review of Adams Mine Landfill Site (Notre Dame Development Corp)

DESCRIPTION:

Request from Approvals Branch for the review of Ecological Risk Assessment and Surface Water Quality Assessment for the Adams Mine Landfill site near Kirkland Lake

DAYS SPENT: 1.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

345 Bryan Leece WCR 05/02/97 / /

I

SUPPORT REQUIRED:

TITLE OF REQUEST:

Review of SSRA for Chippawa Battlefield Site

DESCRIPTION:

Request for review of human and ecological site-specific risk assessments for the Niagara Parks Commission Chippawa Battlefield site.

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: SOCHAAD

346 Bryan Leece WCR 12/02/97 / /

I

SUPPORT REQUIRED:

TITLE OF REQUEST:

SSRA for St Mary's Secondary School, Hamilton

DESCRIPTION:

Request for review of SSRA for St Mary's School in Hamilton. This is a compliance driven SSRA and will not receive peer review. This site is adjacent to the Henkel site in Hamilton. The two processes are related.

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: SOCHAAD

In Progress - p.8

351 Marius Marsh WCR 24/02/97 28/02/97
SUPPORT REQUIRED:
TITLE OF REQUEST:
Review of limited SSRA for 3 Victoria Road Guelph
DESCRIPTION:
Request from cambridge office for review of limited SSRA for foundry site at 3 Victoria Road North, Guelph. Comment from Phyto on naturally high Zn levels. Co-ordinate hydro-g review with STB.
DAYS SPENT: 0.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

362 Scott Abernethy IEB 06/08/96 / /
SUPPORT REQUIRED:
TITLE OF REQUEST:
Prepartion of impact statement for diesel spill into Red Hill Creek
DESCRIPTION:
Request from IEB for an impact statement and testimony in prosecution for a spill of deisel oil into Red Hill Creek
DAYS SPENT: 5.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

364 J. Lee, D. Poirier, M. Mueller WCR 22/01/97 / /
SUPPORT REQUIRED:
TITLE OF REQUEST:
Acute Toxicity testing of MISA audit sample from Union Carbide
DESCRIPTION:
Request from West Central Region of acute toxicity testing of MISA audit samples from Union Carbide
DAYS SPENT: 4.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

366 J. Lee, D. Poirier, M. Mueller WCR 21/01/97 / /
SUPPORT REQUIRED:
TITLE OF REQUEST:
Acute Toxicity testing of MISA Audit Sample from Stelco
DESCRIPTION:
Request from West Central Region for toxicity testing of MISA audit sample from Stelco
DAYS SPENT: 4.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

367 J. Lee, D. Poirier, M. Mueller WCR 28/01/97 / /
SUPPORT REQUIRED:
TITLE OF REQUEST:
Acute toxicity testing of MISA Audit sample from Georgia Pacific Ltd
DESCRIPTION:
Request from West Central Region of acute toxicity testing of MISA audit samples from Georgia Pacific Ltd.
DAYS SPENT: 4.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

368 J. Lee, D. Poirier, M. Mueller NR 30/01/97 / / I
SUPPORT REQUIRED:
TITLE OF REQUEST:
Acute Toxicity testing of MISA Audit sample from Royal Oak Mines
DESCRIPTION:
Request from Northern Region for acute toxicity testing of MISA Audit samples
from Royal Oak Mines
DAYS SPENT: 4.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

369 J. Lee, D. Poirier, M. Mueller WCR 05/02/97 / / I
SUPPORT REQUIRED:
TITLE OF REQUEST:
Acute toxicity testing of MISA Audit sample from Exolon Industries
DESCRIPTION:
Request from West Central Region for acute toxicity testing of MISA Audit samples from Exolon Industries
DAYS SPENT: 4.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

370 J. Lee, D. Poirier, M. Mueller WCR 13/02/97 / / I
SUPPORT REQUIRED:
TITLE OF REQUEST:
Acute toxicity testing of MISA Audit Sample for Donahue Papers
DESCRIPTION:
Request from West Central Region for acute toxicity testing of MISA Audit samples from Donahue Papers
DAYS SPENT: 4.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

371 J. Lee, D. Poirier, M. Mueller WCR 15/02/97 / / I
SUPPORT REQUIRED:
TITLE OF REQUEST:
Acute toxicity testing of MISA Audit samples for Atlas Specialty Steel
DESCRIPTION:
Request from West Central Region for acute toxicity testing of MISA Audit samples from Atlas Specialty Steel
DAYS SPENT: 4.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

372 J. Lee, D. Poirier, M. Mueller WCR 26/02/97 / / I
SUPPORT REQUIRED:
TITLE OF REQUEST:
Acute toxicity testing of MISA Audit samples from Cytec Industries
DESCRIPTION:
Request from West Central Region for acute toxicity testing of MISA Audit samples from Cytec Industries
DAYS SPENT: 4.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

In Progress - p.10

373 J. Lee, D. Poirier, M. Mueller WCR 06/03/97 / / I

SUPPORT REQUIRED:

TITLE OF REQUEST:

Acute toxicity testing of MISA Audit samples for GEON Canada

DESCRIPTION:

Request from West Central Region for acute toxicity testing of MISA Audit samples from GEON Canada

DAYS SPENT: 4.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

374 John Lee NR 01/03/97 / / I

SUPPORT REQUIRED:

TITLE OF REQUEST:

Determine environmental impact of ammonia spill at INCO in Sudbury

DESCRIPTION:

Request from Northern Region to determine the environmental impact of an ammonia spill at INCO Sudbury. Acute toxicity testing and possible court appearance

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

375 John Lee ER 15/02/97 / / I

SUPPORT REQUIRED:

TITLE OF REQUEST:

Acute toxicity testing of leachate from Kingston Landfill

DESCRIPTION:

Request from Eastern Region for acute toxicity testing and chemical analysis of leachate from Kingston Landfill. possible court appearance

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

376 John Lee IEB 20/02/97 / / I

SUPPORT REQUIRED:

TITLE OF REQUEST:

Determine environmental impact of ammonia spill from General Chemical

DESCRIPTION:

Request from IEB to determine the environmental impact of a discharge of ammonia from General Chemical in Amherstburg.

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

377 John Lee NR 20/02/97 / / I

SUPPORT REQUIRED:

TITLE OF REQUEST:

Provide advice on toxicity of chlorine in Class Environmental Assessmt

DESCRIPTION:

Request from Northern region and Regional Municipality of Sudbury to provide expertise on the toxicity of chlorine and to conduct acute toxicity evaluations in support of a Class Environmental Assessment Lively and Walden WWTP

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: LEECEBR

Expert Advice Listing Descriptive Report
Requests Held Pending Client Response to Date (to March 1997)

<u>ID</u>	<u>CODE</u>	<u>LEAD PERSON</u>	<u>CLIENT RECEIVED REQUIRED</u>				
	59	Goff Jenkins	IEB	/	/	/	P
		SUPPORT REQUIRED:					
		David Rokosh					
		TITLE OF REQUEST:					
		Ethyl Canada - expert witness					
		DESCRIPTION:					
		Provided emergency response re: impact on drinking water supplies of a spill of ethylenedibromide in St Clait River in 1992. Requested to be expert witness at trial. Trial postpones until fall of 1995					
		DAYS SPENT: 60.0					
		CREATED BY: ADAM	LAST EDITED: LEECEBR				
	82	JOHN LEE	IEB	07/06/94	/	/	P
		SUPPORT REQUIRED:					
		David Poirier (2 d), David Rokosh					
		TITLE OF REQUEST:					
		SIMULATE BENZENE/CYCLOHEXANE SPILL AND APPEAR AS WITNESS. IEB SW					
		DESCRIPTION:					
		IEB SARNIA REQUESTED TOX. TESTS ON SIMULATED BENZENE/CYCLOHEXANE SPILL AT POLYSAR IN 93. REPORT ON TESTS PROVIDED TO IEB IN SEPT 94 AND STAFF WILL TESTIFY AT TRIAL ANTICIPATED IN FALL 95.					
		DAYS SPENT: 4.0					
		CREATED BY: DEO	LAST EDITED: LEECEBR				
	92	Doug Spry	MOR	20/01/95	02/02/95		P
		SUPPORT REQUIRED:					
		TITLE OF REQUEST:					
		Falconbridge settlement conference, Advice on Ni discharge to Onaping R					
		DESCRIPTION:					
		A settlement hearing was held 02Feb95 for the purpose of negotiation of a CofA in an attempt to avoid having to go to an EABoard hearing. The major issue was whether MISA Regs. provided adequate water protection. Doug discussed PWQO for Ni and water man. pol. J:\EA_ADVIC\..\EA081.95					
		DAYS SPENT: 3.0					
		CREATED BY: DEO	LAST EDITED: LEECEBR				
	118	Bryan Leece	WCR	09/06/95	22/09/95		P
		SUPPORT REQUIRED:					
		TITLE OF REQUEST:					
		Review of Baseline Exposure Assessment for Smithville					
		DESCRIPTION:					
		Review the baseline exposure assessment prepared by Senes for the Bedrock Remediation Program in Smithville					
		DAYS SPENT: 13.0					
		CREATED BY: LEECEBR	LAST EDITED: LEECEBR				

Pending - p.2

129 Bryan Leece
SUPPORT REQUIRED:
TITLE OF REQUEST:
Review of R.A. for Shell Gas Station Site at 74 Cannon St W. Hamilton
DESCRIPTION:
A request from WCR for a review of the site specific risk assessment for a former gas station at 74 Cannon St. W. Hamilton. Site investigation indicates soil contamination on and off site. The R.A. was prepared for Shell and has been submitted by them for review.

DAYS SPENT: 4.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

P

153 Dino Manca
SUPPORT REQUIRED:
TITLE OF REQUEST:
Site Specific Clean-up Criteria for 90 Tycos Drive North York
DESCRIPTION:
A request for review of the Site-Specific Ground Water Clean-up Criteria for 1,1,1-trichloroethane at the Timminco Limited Property at 90 Tycos Drive North York
DAYS SPENT: 0.0
CREATED BY: LEECEBR LAST EDITED: SOCHAAD

P

163 Bryan Leece
SUPPORT REQUIRED:
Scott Fleming, Scott Abernethy (3 d), Allen Kuja
TITLE OF REQUEST:
Review Risk Ass Report Canadian General Tower Site, Cambridge
DESCRIPTION:
Review of work done by Globaltox for Candaian General Tower in defining the nature of contaminants on-site. Issues include groudn water (scott F.), sediments (Scott A. - completed), phyto (Al Kuja)
DAYS SPENT: 0.0
CREATED BY: LEECEBR LAST EDITED: SOCHAAD

P

170 John Lee, Dave Poirier
SUPPORT REQUIRED:
TITLE OF REQUEST:
Toxicity testing on sample from Phillips Cable Brockville
DESCRIPTION:
The company reported a spill of cutting fluid from the winget machine during operation, which discharged into Lake Ontario. A fish kill was observed during the incident. A sample of the cutting fluid contained as much as 4000 ppm copper.
DAYS SPENT: 2.0
CREATED BY: LEECEBR LAST EDITED: SOCHAAD

P

172 Jim Smith SWR 27/09/95 27/09/95 P
SUPPORT REQUIRED:
3. [REDACTED] idan Birmingham, Iraj Rahmani, Bryan Leece
TITLE OF REQUEST:
Drinking Water Level for didecyldimethylammonium chloride; advice
DESCRIPTION:
Emergency advice re: acceptable drinking water level for
didecyldimethylammonium chloride; Interim advice Level = 5 ppb in drinking
water for 24 hours is acceptable. Follow-up required. Final advice for 1996
DAYS SPENT: 0.5
CREATED BY: LEECEBR LAST EDITED: LEECEBR

180 John Lee, Dave Poirier IEB 17/10/95 / / P
SUPPORT REQUIRED:
TITLE OF REQUEST:
Request from IEB for Tox Test on Coke Oven Wash Oils from Stelco
DESCRIPTION:
Request from IEB for toxicity testing on samples collected from Stelco,
Hamilton coke oven wash oil. Tests with trout and daphnia. Trial to
recommence April 29, 97
DAYS SPENT: 3.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

186 Angela Li-Muller ER 30/11/95 03/03/97 P
SUPPORT REQUIRED:
TITLE OF REQUEST:
Health Effects of Oleum - Release from Procter & Gamble, Belleville
DESCRIPTION:
Large discharge of oleum (sulphur trioxide + sulphuric acid) from Procter &
Gamble detergent facility, Belleville. Local residents evacuated, at least
one employee exposed with resulting health problems. Air levels being
modelled. Awaiting further details from investigator.
DAYS SPENT: 44.0
CREATED BY: LEECEBR LAST EDITED: LEECEBR

218 John Lee, Dave Poirier IEB / / / / P
SUPPORT REQUIRED:
TITLE OF REQUEST:
Request for tox tests on material spilled in Thunder Bay
DESCRIPTION:
Request to conduct acute toxicity tests on spilled material Aenor Thunder
Bay - request from Northwest Abatement - tests completed - awaiting regional
IEB response
DAYS SPENT: 2.0
CREATED BY: LEECEBR LAST EDITED: SOCHAAD

219 John Lee IEB / / / / P
SUPPORT REQUIRED:
Dave Poirier (2 d)
TITLE OF REQUEST:
Request for Tox testing and expert witness: Goodyear spill N. Bay
DESCRIPTION:
DAYS SPENT: 0.0
CREATED BY: LEECEBR LAST EDITED: SOCHAAD

Pending - p.4

254 Adam Socha
SUPPORT REQUIRED: OPP 15/04/96 22/04/96 P
TITLE OF REQUEST:
Expert Witness Testimony, Criminal Charges vs Goodyear Tire & Rubber
DESCRIPTION:
The OPP have brought criminal charges against Goodyear, of endangering human life and health in connection with illegal burial of drums of waste solvent by G. Crowe (MOE IEB conviction, ca.1991). PROCEEDINGS WERE HALTED DUE TO A LEGAL TECHNICALITY. Will resume later (1 year?)
DAYS SPENT: 4.0
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

264 Angela Li-Muller
SUPPORT REQUIRED: LEGAL 17/05/96 03/09/96 P
Adam Socha (2 days spent)
TITLE OF REQUEST:
Monarch Coatings Inc. Appeal Hearing - Illegal Paint/Solvent Disposal
DESCRIPTION:
Buried drums containing waste paint and solvent. Over 200 drums found. Drums taken from appellant by persons renting the property. Hearing originally to start 26/6/96 with A. Socha as expert witness, rescheduled to 9/96; advised by LGSB - likely to be settled out of court 10/96
DAYS SPENT: 0.0
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

274 John Lee
SUPPORT REQUIRED: CA 30/04/96 / / P
TITLE OF REQUEST:
Toxicological Evaluation of Paintballs and Effect on Watercourses
DESCRIPTION:
Warren Yerex of Grand River Conservation Authority requests toxicological evaluation of paintballs used in war games and their effect on watercourses in a conservation area. Awaiting material for testing.
DAYS SPENT: 0.0
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

275 John Lee
SUPPORT REQUIRED: CR 20/05/96 / / P
TITLE OF REQUEST:
Stormwater Effluent from G.E. Plastics - toxicological evaluation
DESCRIPTION:
Toxicological evaluation of stormwater from GE Plastics, Peterborough. Regional Contact: Sarah Bellamy. Awaiting data from District Office.
DAYS SPENT: 0.0
CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

278 Akos Szakolcai

LEGAL 09/05/96 12/08/96

P

SUPPORT REQUIRED:

TITLE OF REQUEST:

Coop Logic / GE PCB Destruction Hearing, Expert Witness

DESCRIPTION:

Commitment is pending clarification of CELA, GLU and Greenpeace's issues of concern. Contact is Jack Coop. Hearing starts Aug. 12/96. Issue is destruction of PCBs in contaminated soil, former General Electric plant, 940 Lansdowne Ave. Toronto

DAYS SPENT: 0.0

CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

279 Angela Li-Muller

CR / / / /

P

SUPPORT REQUIRED:

TITLE OF REQUEST:

Rhymed Development R/A Report Review Follow-up

DESCRIPTION:

Follow-up to EA #2. On hold pending meeting between CR and City of Scarborough staff.

DAYS SPENT: 0.0

CREATED BY: SOCHAAD LAST EDITED: SOCHAAD

307 Glenn Rutherford

PDB / / 14/08/96

P

SUPPORT REQUIRED:

TITLE OF REQUEST:

Advice on discontinuation of disinfection at Red Rock STP

DESCRIPTION:

Provision of advice to staff from PDB on an application for discontinuation of disinfection at the Red Rock Sewage Treatment Plant

DAYS SPENT: 0.5

CREATED BY: LEECEBR LAST EDITED: LEECEBR

320 Scott Fleming

NR 17/10/96 / /

P

SUPPORT REQUIRED:

TITLE OF REQUEST:

SSRA review for Husky Oil gas station in Cochrane

DESCRIPTION:

Request form Timmins District Office for review of an SSRA for a compliance driven SSRA for a Husky Oil Gas Station in Cochrane Ont. On hold pending delivery of 3rd-party peer review and consultant's response. Regional contact: Maxine (Maxine) Kasper, E.O., Timmins D.O.

DAYS SPENT: 0.0

CREATED BY: LEECEBR LAST EDITED: SOCHAAD

APPENDIX D

Phytotoxicology Investigation Reports

Phytotoxicology Complaint Investigations: 1996

1996 Complaint Report Status		No. of Complaints =		50		Reports Outstanding =		4		% Complete =		92
Current to:	27-Jan-97											3.3
Report Number	Complainant Name	Location	Alleged Source	Pyto IIC	MOEE Region	MOEE District	Investigation Conducted	Results Recv'd from LSB	Draft Report Written	Final Report to District	Turnaround in Months	
Count							50	46	47	46		
% Done							100	92	94	92		
	Gasparro, Joe	Halton Hills	Contaminated fill	CK	Cen	HP	4-Sep-96					FALSE
023-3511-96	McCalla, Madona	Brampton	neighbour	BG	Cen	HP	29-May-96	16-Jul-96	19-Jul-96	19-Jul-96		1.7
On-Site Report	Wittman, Bill	Mississauga	Petro Canada Refinery	DM	Cen	HP	22-Oct-96	On-Site Report	On-Site Report	22-Oct-96		0.0
Aborted	Abbondandolo, Mike	North York	neighbour	BG	Cen	T	Aborted	Aborted	Aborted	Aborted		Aborted
027-3511-96	Armitage, Patricia	Scarborough	Durashield	BM	Cen	T	4-Jul-96	8-Aug-96	9-Aug-96	9-Aug-96		1.2
026-3511-96	Brown, Debbie	Scarborough	Durashield	BM	Cen	T	4-Jul-96	8-Aug-96	9-Aug-96	9-Aug-96		1.2
On-Site Report	Horgan, Debra	North York	neighbour	DM	Cen	T	18-Sep-96	On-Site Report	On-Site Report	24-Sep-96		0.2
049-3511-96	Hudziak, Mrs.	North York	gas leak	BE	Cen	T	5-Sep-96	No Samples	21-Oct-96	28-Oct-96		1.8
Aborted	Levac, Joan	Scarborough	neighbour	BM	Cen	T	4-Jul-96	Aborted	Aborted	Aborted		Aborted
041-3511-96	Ontario Realty Corp	Etobicoke	Labatt	BG	Cen	T	30-Jul-96	26-Aug-96	10-Oct-96	30-Oct-96		3.1
030-3511-96	Procopio, Gregory	Toronto	neighbour fire	BG	Cen	T	28-May-96	23-Aug-96	3-Sep-96	24-Sep-96		4.0
Aborted	Procopio, Joe	North York	neighbour	BE	Cen	T	Aborted	Aborted	Aborted	Aborted		Aborted
059-3511-96	Ruffolo, Luigi	Toronto	neighbour (deisel fuel)	RJ	Cen	T	22-Aug-96	16-Sep-96	20-Nov-96	2-Dec-96		3.4
025-3511-96	Thomson, Debra	Toronto	Canada Metal	BG	Cen	T	29-May-96	10-Sep-96	10-Sep-96	12-Sep-96		3.5
054-3511-96	Yorston, Darin	Toronto	Toronto Refiners & Smelt.	BE	Cen	T	5-Sep-96	15-Oct-96	22-Oct-96	28-Oct-96		1.8
On-Site Report	Devlieger, Gina	Kettleby	road salt	DM	Cen	YD	12-Aug-96	On-Site Report	On-Site Report	13-Aug-96		0.0
060-3511-96	Wall, Siegfried	Pickering	neighnour	BG	Cen	YD	24-Jul-96	10-Sep-96	20-Nov-96	16-Jan-97		5.9
003-3511-97	Agnew-Pople, Jennifer	Port Hope	Cameco	DM	East	P	27-Jun-96	15-Jan-97	15-Jan-97	16-Jan-97		6.8
066-3511-96	Larsson, Sally	Port Hope	Cameco	DM	East	P	23-May-96	2-Oct-96	17-Dec-96	15-Jan-97		7.9
On-Site Report	Mann, Steve	Peterborough	Peterborough Printer spill	BE	East	P	11-Sep-96	On-Site Report	On-Site Report	12-Sep-96		0.0
057-3511-96	Mark, Thomas	Peterborough	sewage sludge	CK	East	P	29-May-96		1-Nov-96	13-Nov-96		5.6
005-3511-97	Harris, Jean	Fort Frances	neighbour	RJ	North	K	3-Aug-96	1-Jan-97	20-Jan-97	22-Jan-97		5.7
Carry-over 97	Kleinhouse, Harry	Rosseau	Twsp Muskoka Lakes	BE	North	MH	Carry-over 97	Carry-over 97	Carry-over 97	Carry-over 97		Carry-over 97
	Matheson, G.	Lively	oil spill	BM	North	S	31-Jul-96					FALSE
002-3511-97	Plumpton, Gail	Sudbury	roofing tar	BM	North	S	24-Oct-96	13-Nov-96	6-Jan-97	16-Jan-97		2.8
038-3511-96	Skopyk, Mike	Capreol	INCO	BM	North	S	10-Sep-96	No Samples	16-Sep-96	24-Sep-96		0.5
	Wiggeshoff, G.	Lively	oil spill	BM	North	S	31-Jul-96					FALSE
On-Site Report	Foster, Rita	Sault Ste Marie	Chips Away	CK	North	SSM	30-Jul-96	On-Site Report	On-Site Report	1-Aug-96		0.1
On-Site Report	Nagy, Lester	Sault Ste Marie	neighbour	CK	North	SSM	30-Jul-96	On-Site Report	On-Site Report	1-Aug-96		0.1
037-3511-96	Passow, Norm	Connaught	Kidd Creek Metallurgical	BM	North	T	10-Jul-96	26-Aug-96	4-Sep-96	28-Oct-96		3.7
029-3511-96	Estey, Garry	Thunder Bay	unknown	BG	North	TB	12-Aug-96	19-Aug-96	19-Aug-96	19-Aug-96		0.2
035-3511-96	Carlson, Dianne	Samla	adjacent gas station	DM	SW	S	3-May-96	3-Sep-96	16-Sep-96	17-Sep-96		4.6
058-3511-96	Hill, Fred	Samla	Suncor	CK	SW	S	23-Aug-96	No samples	28-Nov-96	4-Dec-96		3.4
064-3511-96	Cox, Jim	Merlin	oil/gas brine pond	BG	SW	W	7-Nov-96	22-Jan-97	22-Jan-97			FALSE
On-Site Report	Dethomassis, Val	Amherstburg	Canadian Oxy	BG	SW	W	26-Sep-96	On-Site Report	On-Site Report	21-Oct-96		0.8
063-3511-96	Hurst, Wayne	Amherstburg	Seagrams	BG	SW	W	27-Sep-96	3-Dec-96	5-Dec-96	12-Dec-96		2.5
On-Site Report	Allen, Sharon	Kitchener	neighbour	BG	WC	C	25-Jul-96	On-Site Report	On-Site Report	1-Aug-96		0.2
032-3511-96	Anderson, Kerry	Hamilton	B&M Recycling	BE	WC	H	7-May-96	3-Sep-96	13-Sep-96	19-Sep-96		4.5
033-3511-96	Kirkpatrick, Helen	Hamilton	B&M Recycling	BE	WC	H	7-May-96	3-Sep-96	17-Sep-96	19-Sep-96		4.5
061-3511-96	Rabbani, Alexandra	Grimsby	Hwy salt	CK	WC	H	28-May-96	No Samples	9-Dec-96	15-Jan-97		7.7
038-3511-96	Rennick, Joseph	Hamilton	B&M Recycling	BE	WC	H	7-May-96	3-Sep-96	17-Sep-96	19-Sep-96		4.5
034-3511-96	Van Gemerden, Cees	Hamilton	B&M Recycling	BE	WC	H	7-May-96	3-Sep-96	17-Sep-96	19-Sep-96		4.5
On-Site Report	Emmett, John	Thorold	Newman Metal	BG	WC	W	9-Aug-96	On-Site Report	On-Site Report	13-Aug-96		0.1
047-3511-96	Everitt, Janet	St. Catharines	ITT Almco	BE	WC	W	2-May-96	7-Oct-96	16-Oct-96	28-Oct-96		6.0

Phytotoxicology Complaint Investigations: 1996

1996 Complaint Report Status					No. of Complaints =			50			Reports Outstanding =			4			% Complete =			92		
Current to:		27-Jan-97									Average Report Turnaround in Months =									3.3		
Report Number	Complainant Name	Location	Alleged Source	Pyto IIC	MOEE Region	MOEE District	Investigation Conducted	Results Rec'd from LSB	Draft Report Written	Final Report to District	Turnaround in Months											
Count								50	46	47	46											
% Done								100	92	94	92											
052-3511-96	Hogewoning, Theo	Jordon Station	Ferndale Vineyards	CK	WC	W	14-May-96	8-Sep-96	19-Nov-96	2-Dec-96	6.7											
051-3511-96	Kyle, Robert	Jordon Station	Ferndale Vineyards	CK	WC	W	14-May-96	8-Sep-96	19-Nov-96	2-Dec-96	6.7											
045-3511-96	Navarroll, Sam	Port Robinson	unknown	BM	WC	W	13-Sep-96	No Samples	18-Sep-96	28-Oct-96	1.5											
050-3511-96	Newman, Jim	Jordon Station	Ferndale Vineyards	CK	WC	W	14-May-96	8-Sep-96	5-Nov-96	13-Nov-96	6.1											
044-3511-96	Peacock, Paul	St. Catharines	ITT Aimco	BE	WC	W	2-May-96	7-Oct-96	16-Oct-96	28-Oct-96	6.0											
053-3511-96	Schonewille, Ken	Jordon Station	Ferndal Vineyards	CK	WC	W	14-May-96	8-Sep-96	19-Nov-96	2-Dec-96	6.7											

Phytotoxicology Survey Investigations: 1996

1996 Survey Report Status		No. of Surveys =		38		Reports Outstanding =		27		% Complete =		29			
Report Number	Source Name	Location	Pyto	IIC	MOEE	Region	MOEE	District	Investigation Conducted	Results Rec'd from LSB	Draft Report Written	OD Reviews Report - Y/N	Final Report Complete*	Average Report Turnaround Time (months) =	Turnaround in Months
Count									38	11	11		11		
% Done									100	29	29		29		
Brampton Brick	Brampton	BE	Cen	HP	4-Sep-96									FALSE	
Canada Brick	Burlington	BE	Cen	HP	29-Aug-96									FALSE	
068-3511-96 Peel County Game Farm	Brampton	BM	Cen	HP	30-Aug-96									FALSE	
Peel Resource Recovery	Brampton	BG	Cen	HP	8-Nov-96									FALSE	
024-3511-96 FULCO PCB Soil Bin	Toronto	BM	Cen	T	13-Jun-96	18-Jun-96	19-Jul-96		NO	6-Aug-96		1.8			
065-3511-96 Dominion Colour	Ajax	MD	Cen	YD	11-Jul-96	15-Oct-96	18-Nov-96		No	20-Jan-97		6.4			
St Mary's Cement (2nd Marsh)	Bowmanville	BM	Cen	YD	5-Sep-96									FALSE	
Thane (Aluminum Dross)	Keswick	CK	Cen	YD	17-Sep-96									FALSE	
ICI Forest Products	Cornwall	BE	East	C	20-Aug-96									FALSE	
Reynolds Metals	Cornwall	BE	East	C	20-Aug-96									FALSE	
Cameco	Port Hope	DM	East	P	26-Sep-96									FALSE	
Cameco (Schools)	Port Hope	DM	East	P	10-Jul-96									FALSE	
Stone Consolidated Inc	Kenora	RJ	North	K	3-Aug-96									FALSE	
Falconbridge Tailings Dam	Sudbury	BM	North	S	30-Jul-96									FALSE	
Crane Canada	Stratford	BE	SW	L	9-Jul-96									FALSE	
Inter-Recycling	Samla	RJ	SW	S	24-Jul-96									FALSE	
002-3511-97 K & E Landfill	Samla	BM	SW	S	29-Aug-96	13-Dec-96	6-Jan-97		No	22-Jan-97		4.9			
Laidlaw Environmental	Samla	CK	SW	S	22-Aug-96									FALSE	
Libbey-St. Clair	Wallaceburg	BE	SW	S	10-Jul-96									FALSE	
Memo Suncor	Samla	DM	SW	S	23-Sep-96	No Samples	No Draft		No	24-Sep-96		0.0			
Allied Chemical	Amherstburg	BG	SW	W	26-Sep-96									FALSE	
048-3511-96 BASF - Fighting Island	Lasalle	RJ	SW	W	3-Oct-96	No Samples	1-Dec-96		No	11-Dec-96		2.3			
H-front Recycle (Bakker Farm)	Haldimand	CK	WC	H	9-Aug-96									FALSE	
H-front Recycle (Kulper Farm)	Cayuga	CK	WC	H	9-Aug-96									FALSE	
H-front Recycle (Reid Farm)	York	CK	WC	H	9-Aug-96									FALSE	
Sherbrook Metals	Port Maitland	DM	WC	H	3-Jul-96									FALSE	
Memo Allied Chemical	Thorold	BG	WC	W	11-Sep-96	No Samples	No Draft		No	21-Oct-96		1.3			
Memo B.F. Goodrich/Geon	Niagara Falls	BG	WC	W	9-Aug-96	No Samples	No Draft		No	14-Aug-96		0.2			
Chemacryl	Niagara Falls	RJ	WC	W	23-Jul-96									FALSE	
Aborted CYTEC-Niagara	Niagara Falls	BE	WC	W	23-Jul-96	Aborted	Aborted		Aborted	Aborted				Aborted	Aborted
GM Foundry PCB Destruction	St. Catharines	CK	WC	W	1-Aug-96									FALSE	
H-front Recycle (Sgambelluri)	Lincoln	CK	WC	W	9-Aug-96									FALSE	
H-front Recycle (Westbrook)	West Lincoln	CK	WC	W	9-Aug-96									FALSE	
Aborted Martindale Pond	Welland	BG	WC	W	Aborted	Aborted	Aborted		Aborted	Aborted				Aborted	Aborted
Aborted Power Grow	Niagara Falls	BE	WC	W	24-Jul-96	Aborted	Aborted		Aborted	Aborted				Aborted	Aborted
Aborted Quno Pulp & Paper Sludge	Thorold	BG	WC	W	Aborted	Aborted	Aborted		Aborted	Aborted				Aborted	Aborted
Rubin & Sons	Welland	CK	WC	W	4-Jun-96									FALSE	
Union Carbide	Welland	BG	WC	W	11-Sep-96									FALSE	

1995 Survey Report Status		No. of Surveys =		42			Reports Outstanding =		9		% Complete =		79	
Current to:	27-Jan-97	Location	Pyto	MOEE	MOEE	Investigation	Results Rec'd	Draft Report	OD Reviews	Final Report	Average Report Turnaround Time (months) =	8.7		
Report Number	Source Name	IIC	Region	District	Conducted	from LSB	Written	Report - Y/N	Complete*	Tumaround In Months				
Count						42			37		33			
% Done						100			88		79			
013-3511-96	Brampton Brick	Snelgrove	BE	Cen	HP	29-Aug-95	29-Nov-95	29-May-96	No	28-Jun-96	10.1			
018-3511-95	Brampton Brick (1-verification)	Brampton	DM	Cen	HP	22-Dec-94	16-Mar-95	29-Mar-95	No	30-Mar-95	3.3			
036-3511-95	Brampton Brick (2-verification)	Brampton	DM	Cen	HP	29-Mar-95	2-Jun-95	26-Jun-95	No	26-Jun-95	3.0			
010-3511-96	Canada Brick	Burlington	BE	Cen	HP	30-Aug-95	9-Feb-96	6-May-96	NO	7-Jun-96	9.4			
Aborted	Leaver Mushrooms	Milton	BM	Cen	HP	Aborted	Aborted	Aborted	Aborted	Aborted				
CO-1996	Peel Resource Recovery	Brampton	BG	Cen	HP	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996
060-3511-95	Peelle Co. Ltd.	Mississauga	BE	Cen	HP	13-Jun-95	16-Nov-95	30-Nov-95	NO	13-Dec-95	6.1			
015-3511-96	Tonolli	Mississauga	BE	Cen	HP	25-Sep-95	14-May-96	12-Jun-96	No	26-Jun-96	9.2			
022-3511-96	Canada Metal	Toronto	BG	Cen	T	21-Sep-95	30-Apr-96	15-Jul-96	Yes	6-Nov-96	13.7			
054-3511-95	FULCO scrap yard	Toronto	BM	Cen	T	31-Oct-95	10-Jan-96	16-Jan-96	NO	25-Jan-96	2.9			
067-3511-96	Heather and Little	Toronto	BG	Cen	T	11-Oct-95	31-Jul-96	20-Dec-96	Yes	13-Jan-97	15.3			
053-3511-95	Twn of Pickering Works Yard	Pickering	BE	Cen	YD	13-Oct-95	31-Oct-95	23-Nov-95	NO	20-Dec-95	2.3			
006-3511-96	Domtar	Cornwall	BE	East	C	24-Aug-95		23-Feb-96	NO	16-Apr-96				
074-3511-95	ICI	Cornwall	BE	East	C	24-Aug-95	7-Dec-95	24-Jan-96	NO	9-Feb-96	5.6			
CO-1996	Cameco	Port Hope	DM	East	P	9-Jul-95	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996
046-3511-95	Peterborough Paper Converters	Peterborough	BE	East	P	9-Jun-95	2-Aug-95	13-Sep-95	NO	17-Oct-95	4.3			
056-3511-96	Laidlaw	Samla	CK	SW	S	22-Aug-95		5-Aug-96	No	12-Dec-96	15.9			
040-3511-96	Libby St. Clair	Wallaceburg	CK	SW	S	24-Aug-95	9-Feb-96	19-Jul-96	NO	5-Nov-96	14.6			
Aborted	Novacor	Samla	RJ	SW	S	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted
	Suncor	Samla	CK	SW	S	23-Aug-95								FALSE
003-3511-96	Welland Chemical	Samla	CK	SW	S	23-Aug-95	17-Jan-96	8-Feb-96	NO	10-May-96	8.7			
014-3511-96	Canada Salt	Windsor	BM	SW	W	26-Sep-95		12-Jun-96						FALSE
	Ford Essex Aluminum	Windsor	BG	SW	W	26-Sep-95								FALSE
CO-1996	General Chemical	Amherstburg	BG	SW	W	27-Sep-95	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996
014-3511-96	Morterm	Windsor	BM	SW	W	26-Sep-95		12-Jun-96						FALSE
016-3511-96	American Standard	Cambridge	BE	WC	C	14-Sep-95	24-Aug-96	6-Nov-96	Yes					FALSE
	Guelph Utility Pole	Nichol Twsp	BG	WC	C	21-Jun-95								FALSE
070-3511-95	IMICO Resample	Guelph	BE	WC	C	27-Jun-95	10-Nov-95	20-Dec-95	NO	26-Jan-96	7.1			
008-3511-96	Naylor Property	Puslinch Twsp	CK	WC	C	8-Jun-95	1-Apr-96	30-Apr-96	NO	29-May-96	11.9			
070-3511-95	Sanderson-Hearld	Paris	BE	WC	C	21-Aug-95	3-Nov-95	10-Jan-96	NO	9-Feb-96	5.7			
042-3511-96	Felker's Falls (Tara Landfill)	Stoney Creek	CK	WC	H	26-Sep-95	26-Jun-96	17-Jul-96	No	5-Nov-96	13.5			
CO-1996	Sherbrooke Metals	Port Maitland	DM	WC	H	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996
	Atlas Specialty Steeles	Welland	BG	WC	W	3-Oct-95								FALSE
Aborted	Burnstein Castings	St. Catharines	BE	WC	W	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted
Aborted	CYTEC-Niagara	Niagara Falls	BE	WC	W	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted
Aborted	GenCorp area survey	Welland	BG	WC	W	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted	Aborted
	General Motors Foundry	St Catharines	CK	WC	W	2-Oct-95								FALSE
062-3511-96	Hernder Farms	Lincoln	BE	WC	W	11-Oct-95	9-Aug-96	10-Dec-96	No					FALSE
008-3511-96	Stevens & Rankin INC	Vineland	CK	WC	W	22-Jun-95	20-Feb-96	19-Apr-96	NO	10-May-96	10.8			
CO-1996	TYREC-Tire	Fort Erie	CK	WC	W	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996
020-3511-96	Union Carbide	Welland	BG	WC	W	7-Sep-95	7-Feb-96	18-Jul-96	NO	2-Aug-96	11.0			
CO-1996	Westbrook Auto Wreckers	Smithville	CK	WC	W	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996	CO-1996

Phytotoxicology Quarterly Report Spreadsheet Glossary

Report No.: - Standards Development Branch report number. The District Office gets a single (original) copy. Public distribution of a Phytotoxicology report is the responsibility of and is at the discretion of the District Office. Most reports go directly to the District Office in their final form. Depending on the nature of the investigation and communication with District staff, a draft report may be made available for review prior to the final report publication.

Complainant/Source Name: - Name of the complainant/source as listed in Phytotoxicology files.

Location: - Town/city in which the complainant/source is located.

Alleged Source (complaint only): - Pollution source as recorded in Phytotoxicology files.

Phyto IIC: - Phytotoxicology Investigator in Charge.
BE - Bob Emerson (905) 456-2504 ext. 327
BG - Bill Gizyn (905) 456-2504 ext. 333
BM - Bill McIlveen (905) 456-2504 ext. 320
CK - Craig Kinch (905) 456-2504 ext 335
RJ - Randy Jones (905) 456-2504 ext.
MM - Marius Marsh (905) 456-2504 ext. 323
DM - Dave McLaughlin (905) 456-2504 ext. 321
AK - Al Kuja (905) 456-2504 ext. 319
MD - Murray Dixon (905) 456-2504 ext 330

Region: - MOEE Region.
Cen - Central
WC - West Central
East - Eastern
SW - Southwestern
North - Northern

District: - MOEE District.
B - Belleville, B - Barrie, C - Cornwall, C - Cambridge, HP - Halton-Peel,
H - Hamilton, K - Kingston, K - Kenora, L - London, NB - North Bay,
O - Ottawa, OS - Owen Sound, P - Peterborough, PK - Pembroke,
PS - Parry Sound, S - Sudbury, S - Sarnia, SSM - Sault Ste Marie, T - Toronto,
T-Timmins, TB - Thunder Bay, W - Welland, W - Windsor, YD - York-Durham.

Results Recv'd from LSB - Date sample results are received from Laboratory Services Branch.

OD Reviews Report Y/N - Operations Division staff reviewed a draft report, YES or NO.

Aborted - The investigation was aborted. There will be no report produced.

CO-19XX: - Carry Over to 19XX, no report this year, the report will be based on additional investigation/data collection to be conducted in 19XX.

On-Site Report: - Used for complaints only, this carbonless form is filled out in the field and left with the complainant when the alleged problem is concluded at the time of the investigation not to be pollution-related. It is the only report that will be issued and closes the Phytotoxicology file. A copy of the completed form is forwarded to the District under cover memo.

FALSE - This appears in the "Turnaround Time in Months" column whenever the final report has not yet been prepared, because the EXCEL spreadsheet cannot calculate turnaround time, as all the data has not been entered.

APPENDIX E

Aquatic Toxicology List of Audit Samples

and

Sediment Bioassay Reports

List of Audit Toxicity Samples, 1996

06-Mar-97

SECTOR	INDUSTRY	LOCATION	PIPE NAME		DATE
Electric Power Generation	Atikokan - TGS	Atikokan	Ash Transport System	Trout	2/6/96
Electric Power Generation	Atikokan - TGS	Atikokan	Ash Transport System	Daphnia	2/6/96
Electric Power Generation	Bruce Bulk Steam Services	Tiverton	Neut. Sump	Daphnia	11/5/96
Electric Power Generation	Bruce Bulk Steam Services	Tiverton	Neut. Sump	Trout	11/5/96
Electric Power Generation	Bruce Heavy Water Plant	Tiverton	Effluent Lagoon	Trout	2/20/96
Electric Power Generation	Bruce Heavy Water Plant	Tiverton	Effluent Lagoon	Daphnia	2/20/96
Electric Power Generation	Bruce Heavy Water Plant	Tiverton	Effluent Lagoon	Daphnia	11/5/96
Electric Power Generation	Bruce Heavy Water Plant	Tiverton	Effluent Lagoon	Trout	11/5/96
Electric Power Generation	Bruce Heavy Water Plant	Tiverton	Process Effluent	Trout	2/20/96
Electric Power Generation	Bruce Heavy Water Plant	Tiverton	Process Effluent	Daphnia	2/20/96
Electric Power Generation	Bruce Heavy Water Plant	Tiverton	Process Effluent	Daphnia	11/5/96
Electric Power Generation	Bruce Heavy Water Plant	Tiverton	Process Effluent	Trout	11/5/96
Electric Power Generation	Bruce Nuc Power Dev't Service	Tiverton	Sewage Treatment Pla	Daphnia	11/5/96
Electric Power Generation	Bruce Nuc Power Dev't Service	Tiverton	Sewage Treatment Pla	Trout	11/5/96
Electric Power Generation	Darlington NGS	Bowmanville	Sewage Treatment Pla	Trout	10/16/96
Electric Power Generation	Darlington NGS	Bowmanville	Sewage Treatment Pla	Daphnia	10/16/96
Electric Power Generation	Lakeview TGS	Mississauga	Coal Pile Treated	Trout	6/26/96
Electric Power Generation	Lakeview TGS	Mississauga	Coal Pile Treated	Daphnia	6/26/96
Electric Power Generation	Lakeview TGS	Mississauga	Oily Water Pwrhse	Trout	6/26/96
Electric Power Generation	Lakeview TGS	Mississauga	Oily Water Pwrhse	Daphnia	6/26/96
Electric Power Generation	Pickering NGS A & B	Pickering	WTP-Neut. Sump	Daphnia	10/29/96
Electric Power Generation	Pickering NGS A & B	Pickering	WTP-Neut. Sump	Trout	10/29/96
Electric Power Generation	Thunder Bay GS	Thunder Bay	Ash Transport System	Trout	1/9/96

SECTOR	INDUSTRY	LOCATION	PIPENAME	DATE	
Electric Power Generation	Thunder Bay GS	Thunder Bay	Ash Transport System	Daphnia	1/9/96
Food and Beverage	Cold Spring Farms	Thamesford	dechlor. plant effluent	Trout	5/29/96
Food and Beverage	Cold Spring Farms	Thamesford	dechlor. plant effluent	Daphnia	5/29/96
Food and Beverage	Cuddy Foods	Hibbert Township, Perth Count	final effluent	Trout	10/17/96
Food and Beverage	Cuddy Foods	Hibbert Township, Perth Count	final effluent	Daphnia	10/17/96
Food and Beverage	Gay Lee Foods Co-op Ltd.	Teeswater	process effluent	Trout	5/28/96
Food and Beverage	Gay Lee Foods Co-op Ltd.	Teeswater	process effluent	Daphnia	5/28/96
Food and Beverage	Horizon Poultry Products Inc.	Ayr	process effluent	Trout	5/29/96
Food and Beverage	Horizon Poultry Products Inc.	Ayr	process effluent	Daphnia	5/29/96
Food and Beverage	Horizon Poultry Products Inc.	Ayr	process effluent	Trout	6/17/96
Food and Beverage	Horizon Poultry Products Inc.	Ayr	process effluent	Daphnia	6/17/96
Industrial Minerals	Applied Carbon Tech	Kearney	process effluent	Trout	7/15/96
Industrial Minerals	Applied Carbon Tech	Kearney	process effluent	Daphnia	7/15/96
Industrial Minerals	Applied Carbon Tech	Kearney	process effluent	Daphnia	10/28/96
Industrial Minerals	Applied Carbon Tech	Kearney	process effluent	Trout	10/28/96
Industrial Minerals	Beachvilime Limited - West Pl	Beachville	Lime Plant Effluent W	Trout	9/17/96
Industrial Minerals	Beachvilime Ltd.-Guelph Doli	Guelph	Lime Plant Effluent So	Trout	5/21/96
Industrial Minerals	Beachvilime Ltd.-Guelph Doli	Guelph	Lime Plant Effluent So	Daphnia	5/21/96
Industrial Minerals	ESSROC Canada Inc. - Picton	Picton	Quarry Water Effluent	Trout	6/10/96
Industrial Minerals	Lafarge Canada Inc. - Bath Ce	Bath	Cement Plant Effluent	Trout	7/8/96
Industrial Minerals	Lafarge Canada Inc. - Bath Ce	Bath	Cement Plant Effluent	Daphnia	7/8/96
Industrial Minerals	Lafarge Canada Inc. Plant 4	Woodstock	Cement Plant Effluent	Trout	10/1/96
Industrial Minerals	Lafarge Canada Inc. Plant 4	Woodstock	Cement Plant Effluent	Daphnia	10/1/96
Industrial Minerals	Lafarge Canada Inc. Plant 4	Woodstock	Quarry Water Effluent	Trout	10/1/96
Industrial Minerals	Lafarge Canada Inc. Plant 4	Woodstock	Quarry Water Effluent	Daphnia	10/1/96
Industrial Minerals	Sifto Canada Inc. Goderich Mi	Goderich	Dome #1	Trout	6/26/96
Industrial Minerals	Sifto Canada Inc. Goderich Mi	Goderich	Dome #1	Daphnia	6/26/96

SECTOR	INDUSTRY	LOCATION	PIPENAME	DATE
Industrial Minerals	St. Lawrence Cement Inc. - Mis Mississauga		Cement Plant Effluent Trout	5/8/96
Industrial Minerals	St. Lawrence Cement Inc. - Mis Mississauga		Cement Plant Effluent Daphnia	5/8/96
Industrial Minerals	St. Marys Cement Corp., St. M St. Marys		Cement Plant Effluent Trout	10/10/96
Industrial Minerals	St. Marys Cement Corp., St. M St. Marys		Cement Plant Effluent Daphnia	10/10/96
Industrial Minerals	St. Marys Cement Corp., St. M St. Marys		Quarry Water Effluent Trout	10/10/96
Industrial Minerals	St. Marys Cement Corp., St. M St. Marys		Quarry Water Effluent Daphnia	10/10/96
Industrial Minerals	St. Marys Cement Corp., St. M St. Marys		Quarry Water Effluent Daphnia	10/10/96
Industrial Minerals	St. Marys Cement Corp., St. M St. Marys		Quarry Water Effluent Trout	10/10/96
Industrial Minerals	Timminco Limited - Haley Stat Haley Station		Magnesium Plant Effl Trout	6/3/96
Industrial Minerals	Timminco Limited - Haley Stat Haley Station		Magnesium Plant Effl Daphnia	6/3/96
Inorganic Chemical	Cabot Canada Ltd.	Sarnia	Discharge Trout	10/7/96
Inorganic Chemical	Cabot Canada Ltd.	Sarnia	Discharge Daphnia	10/7/96
Inorganic Chemical	Explosive Technologies Int. Lt	North Bay	Discharge at Weir Trout	7/3/96
Inorganic Chemical	Explosive Technologies Int. Lt	North Bay	Discharge at Weir Daphnia	7/3/96
Inorganic Chemical	General Chemical Canada Ltd.	Amherstburg	Main Drain Trout	7/22/96
Inorganic Chemical	General Chemical Canada Ltd.	Amherstburg	Main Drain Daphnia	7/22/96
Inorganic Chemical	General Chemical Canada Ltd.	Amherstburg	North Drain Trout	7/22/96
Inorganic Chemical	Praxair Canada Inc.	Sarnia	Effluent to Cole Drain Trout	7/23/96
Inorganic Chemical	Praxair Canada Inc.	Moore TWP	Final Effluent Trout	7/23/96
Inorganic Chemical	Sulco Chemicals Ltd.	Elmira	Final Effluent Trout	6/3/96
Inorganic Chemical	Sulco Chemicals Ltd.	Elmira	Final Effluent Daphnia	6/3/96
Inorganic Chemicals	Terra	Courtright	30 inch pipe Trout	11/5/96
Inorganic Chemicals	Terra	Courtright	30 inch pipe Daphnia	11/5/96
Inorganic Chemicals	Terra	Courtright	42 inch A-11 Trout	11/5/96
Inorganic Chemicals	Terra	Courtright	42 inch A-11 Daphnia	11/5/96
Inorganic Chemicals	Terra	Courtright	final effluent Trout	11/5/96
Inorganic Chemicals	Terra	Courtright	final effluent Daphnia	11/5/96

SECTOR	INDUSTRY	LOCATION	PIPENAME	DATE
Inorganic Chemicals	Terra	Courtright	manhole 55	Trout
Inorganic Chemicals	Terra	Courtright	manhole 55	Daphnia
Inorganic Chemicals	Unimin Canada, Blue Mountai	Belmont/Methuen Township	Pit	Trout
Inorganic Chemicals	Unimin Canada, Blue Mountai	Belmont/Methuen Township	Pond #4	Trout
Iron and Steel	Algoma Steel	Sault Ste. Marie	#2 Steel Making CW	Trout
Iron and Steel	Algoma Steel	Sault Ste. Marie	#2 Steel Making CW	Daphnia
Iron and Steel	Algoma Steel	Sault Ste. Marie	#2 Tube Mill	Trout
Iron and Steel	Algoma Steel	Sault Ste. Marie	#2 Tube Mill	Daphnia
Iron and Steel	Algoma Steel	Sault Ste. Marie	30 inch Sewer	Trout
Iron and Steel	Algoma Steel	Sault Ste. Marie	30 inch Sewer	Daphnia
Iron and Steel	Algoma Steel	Sault Ste. Marie	60 inch Sewer	Trout
Iron and Steel	Algoma Steel	Sault Ste. Marie	60 inch Sewer	Daphnia
Iron and Steel	Algoma Steel	Sault Ste. Marie	Bar & Strip Lagoon	Trout
Iron and Steel	Algoma Steel	Sault Ste. Marie	Boiler House	Trout
Iron and Steel	Algoma Steel	Sault Ste. Marie	Boiler House	Daphnia
Iron and Steel	Algoma Steel	Sault Ste. Marie	Coke Oven Condenser	Trout
Iron and Steel	Algoma Steel	Sault Ste. Marie	Coke Oven Condenser	Daphnia
Iron and Steel	Algoma Steel	Sault Ste. Marie	Cold Mill 20 inch	Trout
Iron and Steel	Algoma Steel	Sault Ste. Marie	Cold Mill 20 inch	Daphnia
Iron and Steel	Algoma Steel	Sault Ste. Marie	Cold Mill 24 inch	Trout
Iron and Steel	Algoma Steel	Sault Ste. Marie	Cold Mill 24 inch	Daphnia
Iron and Steel	Algoma Steel	Sault Ste. Marie	Terminal Settling Basi	Trout
Iron and Steel	Algoma Steel	Sault Ste. Marie	Terminal Settling Basi	Daphnia
Iron and Steel	Algoma Steel	Sault Ste. Marie	Tube Mill	Trout
Iron and Steel	Algoma Steel	Sault Ste. Marie	Tube Mill	Daphnia
Iron and Steel	Dofasco Inc.	Hamilton	West Bay Front Sewer	Trout
Iron and Steel	Dofasco Inc.	Hamilton	West Bay Front Sewer	Daphnia

SECTOR	INDUSTRY	LOCATION	PIPENAME	DATE
Iron and Steel	Lasco	Whitby	South Pond	Trout 9/18/96
Iron and Steel	Stelco Steel Hilton Works	Hamilton	North Outfall	Trout 6/3/96
Iron and Steel	Stelco Steel Hilton Works	Hamilton	North Outfall	Daphnia 6/3/96
Iron and Steel	Stelco Steel Hilton Works	Hamilton	Northwest Outfall	Trout 6/3/96
Iron and Steel	Stelco Steel Hilton Works	Hamilton	Northwest Outfall	Daphnia 6/3/96
Iron and Steel	Stelco Steel Hilton Works	Hamilton	West Side Open Cut	Trout 6/3/96
Iron and Steel	Stelco Steel Hilton Works	Hamilton	West Side Open Cut	Daphnia 6/3/96
Iron and Steel	Stelco Steel Lake Erie Works	Nanticoke	#4 Pond Discharge	Trout 6/18/96
Iron and Steel	Stelco Steel Lake Erie Works	Nanticoke	#4 Pond Discharge	Daphnia 6/18/96
Metal Casting	Westcast Industries Inc.	Wingham	Core Machine/Compre	Trout 7/31/96
Metal, Plastic Fabricating and F	Canusa, Division of Shaw pipe	Huntsville Ontario	Process effluent	Trout 8/14/96
Metal, Plastic Fabricating and F	Canusa, Division of Shaw pipe	Huntsville Ontario	Process effluent	Daphnia 8/14/96
Metal, Plastic Fabricating and F	Ford Motor Co. Ltd., Assembly	St. Thomas	process effluent	Trout 2/7/96
Metal, Plastic Fabricating and F	Ford Motor Co. Ltd., Assembly	St. Thomas	process effluent	Daphnia 2/7/96
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Trout 1/17/96
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Daphnia 1/17/96
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Trout 1/18/96
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Daphnia 1/18/96
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Trout 1/19/96
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Daphnia 1/19/96
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Trout 2/8/96
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Daphnia 2/8/96
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Trout 2/20/96
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Daphnia 2/20/96
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Trout 2/21/96
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Daphnia 2/21/96
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Trout 4/25/96

SECTOR	INDUSTRY	LOCATION	PIPENAME	DATE
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Daphnia
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Trout
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Daphnia
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Inlet Pipe	Trout
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Trout
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Daphnia
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Trout
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Daphnia
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Trout
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Daphnia
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Trout
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Daphnia
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Trout
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Daphnia
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Trout
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Daphnia
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Trout
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Daphnia
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Trout
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Daphnia
Misc	Rouge River/Hwy 401 S.W. M	Toronto	Outlet Pipe	Trout
Misc	Toronto Beaches Stormwater H	Toronto	CSO	Trout
Misc	Toronto Beaches Stormwater H	Toronto	CSO	Trout
Misc	Toronto Beaches Stormwater H	Toronto	Inlet	Trout
Misc	Toronto Beaches Stormwater H	Toronto	Inlet	Daphnia
Misc	Toronto Beaches Stormwater H	Toronto	Inlet	Trout
Misc	Toronto Beaches Stormwater H	Toronto	Inlet	Daphnia

SECTOR	INDUSTRY	LOCATION	PIPENAME	DATE	
Misc	Toronto Beaches Stormwater H	Toronto	Outlet	Trout	7/15/96
Ontario Mineral Industry : Gro	Algoma Ore Div.-Algoma Steel	Wawa	Final Decant	Trout	6/18/96
Ontario Mineral Industry : Gro	Algoma Ore Div.-Algoma Steel	Wawa	Final Decant	Daphnia	6/18/96
Ontario Mineral Industry : Gro	Barrick Gold Corp, Golden Pat	District of Kenora	process effluent	Trout	10/8/96
Ontario Mineral Industry : Gro	Barrick Gold Corp, Golden Pat	District of Kenora	process effluent	Daphnia	10/8/96
Ontario Mineral Industry : Gro	Barrick Gold Corp.	Harker Township	Final Discharge	Trout	10/15/96
Ontario Mineral Industry : Gro	Barrick Gold Corp.	Harker Township	Final Discharge	Daphnia	10/15/96
Ontario Mineral Industry : Gro	Cameco A Canadian Mining/E	Blind River	Final Discharge	Trout	10/8/96
Ontario Mineral Industry : Gro	Cameco A Canadian Mining/E	Blind River	Final Discharge	Daphnia	10/8/96
Ontario Mineral Industry : Gro	Copper Cliff Treatment Plant -	Sudbury	Final Discharge	Daphnia	10/29/96
Ontario Mineral Industry : Gro	Copper Cliff Treatment Plant -	Sudbury	Final Discharge	Trout	10/29/96
Ontario Mineral Industry : Gro	David Bell Mine - Teck Corona	Hemlo	Final Discharge	Trout	5/28/96
Ontario Mineral Industry : Gro	David Bell Mine - Teck Corona	Hemlo	Final Discharge	Daphnia	5/28/96
Ontario Mineral Industry : Gro	Detour Lake Mine - Placer Do	Detour Lake	Final Discharge	Trout	7/29/96
Ontario Mineral Industry : Gro	Detour Lake Mine - Placer Do	Detour Lake	Final Discharge	Daphnia	7/29/96
Ontario Mineral Industry : Gro	Falconbridge, Longvack	Sudbury	downstream	Trout	11/12/96
Ontario Mineral Industry : Gro	Falconbridge, Longvack	Sudbury	downstream	Daphnia	11/12/96
Ontario Mineral Industry : Gro	Falconbridge, Longvack	Sudbury	upstream	Trout	11/12/96
Ontario Mineral Industry : Gro	Falconbridge, Longvack	Sudbury	upstream	Daphnia	11/12/96
Ontario Mineral Industry : Gro	Falconbridge, Nickel Rim	Sudbury	Maccloud Creek upstre	Trout	11/13/96
Ontario Mineral Industry : Gro	Falconbridge, Nickel Rim	Sudbury	Maccloud Creek upstre	Daphnia	11/13/96
Ontario Mineral Industry : Gro	Falconbridge, Nickel Rim	Sudbury	Nickel Rim	Trout	11/12/96
Ontario Mineral Industry : Gro	Falconbridge, Nickel Rim	Sudbury	Nickel Rim	Daphnia	11/12/96
Ontario Mineral Industry : Gro	Garson - Inco Ltd.	Sudbury	Minewater/culvert at S	Trout	10/15/96
Ontario Mineral Industry : Gro	Garson - Inco Ltd.	Sudbury	Minewater/culvert at S	Daphnia	10/15/96
Ontario Mineral Industry : Gro	Golden Giant Mine-Hemlo	Gol Hemlo	Final Discharge	Trout	6/3/96
Ontario Mineral Industry : Gro	Golden Giant Mine-Hemlo	Gol Hemlo	Final Discharge	Daphnia	6/3/96

SECTOR	INDUSTRY	LOCATION	PIPENAME	DATE
Ontario Mineral Industry : Gro	Golden Giant Mine-Hemlo Gol	Hemlo	Final Discharge	Trout
Ontario Mineral Industry : Gro	Golden Giant Mine-Hemlo Gol	Hemlo	Final Discharge	Daphnia
Ontario Mineral Industry : Gro	Inco Ltd.	Sudbury	Airstrip Hwy 69	Trout
Ontario Mineral Industry : Gro	Inco Ltd.	Sudbury	Airstrip Hwy 69	Daphnia
Ontario Mineral Industry : Gro	Inco Ltd.	Sudbury	Big Nickel	Trout
Ontario Mineral Industry : Gro	Inco Ltd.	Sudbury	Big Nickel	Daphnia
Ontario Mineral Industry : Gro	Inco Ltd.	Sudbury	Gatchel	Trout
Ontario Mineral Industry : Gro	Inco Ltd.	Sudbury	Gatchel	Daphnia
Ontario Mineral Industry : Gro	Inco Ltd.	Sudbury	Meatbird Cr d/s golf cl	Trout
Ontario Mineral Industry : Gro	Inco Ltd.	Sudbury	Meatbird Cr d/s golf cl	Daphnia
Ontario Mineral Industry : Gro	Inco Ltd.	Sudbury	Meatbird Cr u/s golf cl	Trout
Ontario Mineral Industry : Gro	Inco Ltd.	Sudbury	Meatbird Cr u/s golf cl	Daphnia
Ontario Mineral Industry : Gro	Inco Ltd.	Sudbury	Mikkola Dam	Trout
Ontario Mineral Industry : Gro	Inco Ltd.	Sudbury	Mikkola Dam	Daphnia
Ontario Mineral Industry : Gro	Inco Ltd.	Sudbury	Pistol Dam	Trout
Ontario Mineral Industry : Gro	Inco Ltd.	Sudbury	Pistol Dam	Daphnia
Ontario Mineral Industry : Gro	Inco Ltd., Coniston Creek Site	Sudbury	Coniston Creek East	Trout
Ontario Mineral Industry : Gro	Inco Ltd., Coniston Creek Site	Sudbury	Coniston Creek East	Daphnia
Ontario Mineral Industry : Gro	Inco Ltd., Coniston Creek Site	Sudbury	Coniston- Alice Lake i	Trout
Ontario Mineral Industry : Gro	Inco Ltd., Coniston Creek Site	Sudbury	Coniston- Alice Lake i	Daphnia
Ontario Mineral Industry : Gro	Levack - Inco Ltd.	Sudbury	Minewater	Trout
Ontario Mineral Industry : Gro	Levack - Inco Ltd.	Sudbury	Minewater	Daphnia
Ontario Mineral Industry : Gro	Nickel Refinery - Inco Ltd.	Sudbury	Discharge / second po	Trout
Ontario Mineral Industry : Gro	Nickel Refinery - Inco Ltd.	Sudbury	Discharge / second po	Daphnia
Ontario Mineral Industry : Gro	Nolin Creek Treatment Plant - I	Sudbury	Final Discharge	Trout
Ontario Mineral Industry : Gro	Nolin Creek Treatment Plant - I	Sudbury	Final Discharge	Daphnia
Ontario Mineral Industry : Gro	Royal Oak Mine, Pamour #1	Timmins	Decant Weir # 2	Trout

SECTOR	INDUSTRY	LOCATION	PIPE NAME	DATE
Ontario Mineral Industry : Gro	Royal Oak Mine, Pamour #1	Timmins	Decant Weir # 2	Daphnia 5/28/96
Ontario Mineral Industry : Gro	Shebandowan Property - Inco	Thunder Bay	Final Discharge	Trout 10/16/96
Ontario Mineral Industry : Gro	Shebandowan Property - Inco	Thunder Bay	Final Discharge	Daphnia 10/16/96
Ontario Mineral Industry : Gro	Williams Operating Corp.	Hemlo	Final Discharge	Trout 6/11/96
Ontario Mineral Industry : Gro	Williams Operating Corp.	Hemlo	Final Discharge	Daphnia 6/11/96
Organic Chemical	Amoco Canada Petroleum Can	Sarnia	Storm Water	Trout 8/12/96
Organic Chemical	Amoco Canada Petroleum Can	Sarnia	Storm Water	Daphnia 8/12/96
Organic Chemical	Chinook Group Ltd.	Sombra	combined effluent	Trout 7/30/96
Organic Chemical	Chinook Group Ltd.	Sombra	combined effluent	Daphnia 7/30/96
Organic Chemical	Dow Chemical Canada Inc.	Sarnia	combined effluent	Trout 8/6/96
Organic Chemical	Dow Chemical Canada Inc.	Sarnia	combined effluent	Daphnia 8/6/96
Organic Chemical	Dow Chemical Canada Inc.	Sarnia	combined effluent	Trout 8/6/96
Organic Chemical	Dow Chemical Canada Inc.	Sarnia	combined effluent	Daphnia 8/6/96
Organic Chemical	Dow Chemical Canada Inc.	Sarnia	combined effluent	Trout 8/6/96
Organic Chemical	Dow Chemical Canada Inc.	Sarnia	combined effluent	Daphnia 8/6/96
Organic Chemical	Dow Chemical Canada Inc.	Sarnia	combined effluent	Trout 8/6/96
Organic Chemical	Dow Chemical Canada Inc.	Sarnia	process effluent	Trout 8/6/96
Organic Chemical	Dow Chemical Canada Inc.	Sarnia	process effluent	Daphnia 8/6/96
Organic Chemical	Dow Chemical Canada Inc.	Sarnia	total plant	Trout 9/11/96
Organic Chemical	Dow Chemical Canada Inc.	Sarnia	total plant	Daphnia 9/11/96
Organic Chemical	Dow Chemical Canada Inc.	Sarnia	waste site	Trout 9/25/96
Organic Chemical	Du Pont Canada Inc.	Kingston	combined effluent	Trout 10/23/96
Organic Chemical	Du Pont Canada Inc.	Kingston	combined effluent	Daphnia 10/23/96
Organic Chemical	Du Pont Canada Inc.	Kingston	combined effluent	Daphnia 10/23/96
Organic Chemical	Du Pont Canada Inc.	Kingston	combined effluent	Trout 10/23/96
Organic Chemical	KWH Pipe	Huntsville	process effluent	Trout 10/10/96
Organic Chemical	KWH Pipe	Huntsville	process effluent	Daphnia 10/10/96
Organic Chemical	Polysar Rubber Corp.	Sarnia	Batch	Trout 9/24/96

SECTOR	INDUSTRY	LOCATION	PIPENAME	DATE
Organic Chemical	Polysar Rubber Corp.	Sarnia	Batch	Daphnia 9/24/96
Organic Chemical	Polysar Rubber Corp.	Sarnia	OT cooling water	Trout 9/24/96
Organic Chemical	Polysar Rubber Corp.	Sarnia	OT cooling water	Daphnia 9/24/96
Organic Chemical	Polysar Rubber Corp.	Sarnia	combined effluent	Trout 9/24/96
Organic Chemical	Polysar Rubber Corp.	Sarnia	combined effluent	Daphnia 9/24/96
Organic Chemical	Polysar Rubber Corp.	Sarnia	combined effluent	Trout 9/24/96
Organic Chemical	Polysar Rubber Corp.	Sarnia	combined effluent	Trout 9/24/96
Organic Chemical	Polysar Rubber Corp.	Sarnia	combined effluent	Daphnia 9/24/96
Organic Chemical	Polysar Rubber Corp.	Sarnia	combined effluent	Daphnia 9/24/96
Organic Chemical	Polysar Rubber Corp.	Sarnia	process effluent	Trout 9/24/96
Organic Chemical	Polysar Rubber Corp.	Sarnia	process effluent	Daphnia 9/24/96
Organic Chemical	Polysar Rubber Corp.	Sarnia	storm water	Trout 9/24/96
Organic Chemical	Polysar Rubber Corp.	Sarnia	storm water	Daphnia 9/24/96
Organic Chemical	Uniroyal Chemical Ltd.	Elmira	OT cooling water	Trout 7/8/96
Organic Chemical	Uniroyal Chemical Ltd.	Elmira	OT cooling water	Daphnia 7/8/96
Organic Chemical	Uniroyal Chemical Ltd.	Elmira	combined effluent	Trout 7/8/96
Organic Chemical	Uniroyal Chemical Ltd.	Elmira	combined effluent	Daphnia 7/8/96
Petroleum Refining	Esso Petroleum Canada	Sarnia	process effluent	Trout 2/19/96
Petroleum Refining	Esso Petroleum Canada	Sarnia	process effluent	Daphnia 2/19/96
Petroleum Refining	Esso Petroleum Canada	Sarnia	process effluent	Trout 6/3/96
Petroleum Refining	Esso Petroleum Canada	Sarnia	process effluent	Daphnia 6/3/96
Petroleum Refining	Imperial Oil (Nanticoke Refine	Nanticoke	Process Effluent	Trout 6/25/96
Petroleum Refining	Imperial Oil (Nanticoke Refine	Nanticoke	Process Effluent	Daphnia 6/25/96
Petroleum Refining	Novacor Chemicals Ltd.	Sarnia	Process Effluent	Daphnia 10/28/96
Petroleum Refining	Novacor Chemicals Ltd.	Sarnia	Process Effluent	Trout 10/28/96
Petroleum Refining	Petro-Canada Inc.	Oakville	Process Effluent	Trout 8/20/96
Petroleum Refining	Petro-Canada Inc.	Oakville	Process Effluent	Daphnia 8/20/96

SECTOR	INDUSTRY	LOCATION	PIPENAME	DATE	
Petroleum Refining	Petro-Canada Products -Mississ	Mississauga	Process Effluent	Trout	9/26/96
Petroleum Refining	Shell Canada Products Limited	Sarnia	CW from POW	Trout	5/14/96
Petroleum Refining	Shell Canada Products Limited	Sarnia	CW from POW	Daphnia	5/14/96
Petroleum Refining	Shell Canada Products Limited	Sarnia	CW to Talford Creek	Trout	5/14/96
Petroleum Refining	Shell Canada Products Limited	Sarnia	CW to Talford Creek	Daphnia	5/14/96
Petroleum Refining	Shell Canada Products Limited	Sarnia	Process Effluent	Trout	5/14/96
Petroleum Refining	Shell Canada Products Limited	Sarnia	Process Effluent	Daphnia	5/14/96
Petroleum Refining	Suncor Inc.	Sarnia	Process Effluent	Trout	1/30/96
Petroleum Refining	Suncor Inc.	Sarnia	Process Effluent	Daphnia	1/30/96
pulp and paper	Abitibi-Price Inc.	Iroquois Falls	Total Outfall	Trout	7/8/96
pulp and paper	Abitibi-Price Inc.	Iroquois Falls	Total Outfall	Daphnia	7/8/96
pulp and paper	Aenor Forest Products	Thunder Bay	Combined Mill Outfall	Trout	4/17/96
pulp and paper	Aenor Forest Products	Thunder Bay	Combined Mill Outfall	Daphnia	4/17/96
pulp and paper	Aenor Inc.	Dryden	Final Effluent	Trout	2/6/96
pulp and paper	Aenor Inc.	Dryden	Final Effluent	Daphnia	2/6/96
pulp and paper	Aenor Inc.	Dryden	Final Effluent	Trout	9/18/96
pulp and paper	Aenor Inc.	Dryden	Final Effluent	Daphnia	9/18/96
pulp and paper	Domtar Inc.	St. Catharines	Clarifier Outlet	Trout	6/19/96
pulp and paper	Domtar Inc.	St. Catharines	Clarifier Outlet	Daphnia	6/19/96
pulp and paper	Domtar Inc.	Trenton	Mill Combined Efflue	Trout	2/19/96
pulp and paper	Domtar Inc.	Trenton	Mill Combined Efflue	Daphnia	2/19/96
pulp and paper	Domtar Inc.	Trenton	Mill Combined Efflue	Daphnia	11/27/96
pulp and paper	Domtar Inc.	Trenton	Mill Combined Efflue	Trout	11/27/96
pulp and paper	Domtar Inc.	Cornwall	Total Mill Effluent	Trout	2/19/96
pulp and paper	Domtar Inc.	Cornwall	Total Mill Effluent	Daphnia	2/19/96
pulp and paper	Domtar Inc.	Red Rock	Total Mill Outfall Stre	Trout	1/30/96
pulp and paper	Domtar Inc.	Red Rock	Total Mill Outfall Stre	Daphnia	1/30/96

SECTOR	INDUSTRY	LOCATION	PIPE NAME	DATE	
pulp and paper	E.B.Eddy Forest Products Ltd.	Espanola	Main Mill Sewer	Trout	7/23/96
pulp and paper	James River Marathon Ltd.	Marathon	Final Effluent PE1	Trout	5/28/96
pulp and paper	James River Marathon Ltd.	Marathon	Final Effluent PE1	Daphnia	5/28/96
pulp and paper	Kimberly-Clark Forest Product	Terrace Bay	Combined Effluent K	Trout	5/7/96
pulp and paper	Kimberly-Clark Forest Product	Terrace Bay	Combined Effluent K	Daphnia	5/7/96
pulp and paper	Kimberly-Clark Forest Product	Terrace Bay	Combined Effluent K	Trout	5/29/96
pulp and paper	Kimberly-Clark Forest Product	Terrace Bay	Combined Effluent K	Daphnia	5/29/96
pulp and paper	Kimberly-Clark Inc.	St. Catharines	Final Effluent	Trout	6/26/96
pulp and paper	Kimberly-Clark Inc.	St. Catharines	Final Effluent	Daphnia	6/26/96
pulp and paper	Macmillan-Bloedel Limited	Sturgeon Falls	clean water effluent	Trout	7/22/96
pulp and paper	Macmillan-Bloedel Limited	Sturgeon Falls	clean water effluent	Daphnia	7/22/96
pulp and paper	Malette Inc.	Smooth Rock Falls	process effluent	Daphnia	6/11/96
pulp and paper	Malette Inc.	Smooth Rock Falls	process effluent	Trout	6/11/96
pulp and paper	Noranda Forest Inc. Recycled P	Thorold	Circular Clarifier	Trout	7/9/96
pulp and paper	Noranda Forest Inc. Recycled P	Thorold	Circular Clarifier	Daphnia	7/9/96
pulp and paper	Provincial Papers Inc.	Thunder Bay	Lagoon Outfall	Trout	2/20/96
pulp and paper	Provincial Papers Inc.	Thunder Bay	Lagoon Outfall	Daphnia	2/20/96
pulp and paper	Rainy River Forest Products In	Kenora	Final Effluent	Trout	6/5/96
pulp and paper	Rainy River Forest Products In	Kenora	Final Effluent	Daphnia	6/5/96
pulp and paper	Rainy River Forest Products In	Fort Frances	Total Mill Final Efflue	Trout	5/1/96
pulp and paper	Rainy River Forest Products In	Fort Frances	Total Mill Final Efflue	Daphnia	5/1/96
pulp and paper	Sonoco Ltd.	Trenton	Process Effluent	Trout	2/14/96
pulp and paper	Sonoco Ltd.	Trenton	Process Effluent	Daphnia	2/14/96
pulp and paper	Sonoco Ltd.	Trenton	Process Effluent	Trout	11/6/96
pulp and paper	Spruce Falls Inc.	Kapuskasing	Mill Main Sewer	Trout	4/15/96
pulp and paper	Spruce Falls Inc.	Kapuskasing	Mill Main Sewer	Daphnia	4/15/96
pulp and paper	Thunderbay Packaging Inc.	Thunder Bay	Primary Lagoon Outfa	Trout	10/29/96

SECTOR	INDUSTRY	LOCATION	PIPENAME	DATE
pulp and paper	Thunderbay Packaging Inc.	Thunder Bay	Primary Lagoon Outfall	10/29/96
pulp and paper	Thunderbay Packaging Inc.	Thunder Bay	Pumping Basin	Trout
pulp and paper	Thunderbay Packaging Inc.	Thunder Bay	Pumping Basin	Daphnia

LIST OF SEDIMENT BIOASSAY REPORTS COMPLETED TO DATE FOR 1996/97.

TITLE: CLIENT / STATUS / DATE
Sediment and Biological Assessment of the Northern Wood Preservers Inc. Site, Thunder Bay. July 1995 and September 1995
Environment Canada & Northwestern / Submitted for MOEE Publication / Jan 1996
Report on Laboratory Sediment Bioassay Results for Ross Lord Dam Sediments 1994
EMRB / Internal Technical Report / February 1996
Henley Rowing Course - Martindale Pond Sediment Assessment June 1995
West Central / Internal Technical Report / April 1996
Report on Laboratory Sediment Bioassay Results for Owen Sound Harbour in the Vicinity of the 11th Street Outfall 1995
Southwestern & Public Works Canada / Internal Technical Report / May 1996
Sediment and Biological Assessment of the Meyer's Pier Site, Belleville, Ontario 1995
Eastern / Interim Internal Technical Report / July 1996
Report on Laboratory Sediment Bioassay Results for Oshawa Second Marsh Sediments 1994
Environment Canada / Internal Technical Report / July 1996
Laboratory Sediment Bioassay Report on Montreal River Sediments in the Vicinity of Cobalt Smelting and Refinery 1994
Northern Ontario / Internal Technical Report / July 1996
Evaluation of the 10-day Sediment Toxicity Test using the Midge (<i>Chironomus tentans</i>): the Effect of Different Water:Sediment Ratios on Biological Endpoints and Water Quality
SDB & Environment Canada / MOEE Pub. ISBN 0-7778-5449-X / October 1996
Preliminary Sediment and Biological Investigations of the Former Deseronto Coal Gasification Plant Site, July 1994
Eastern / Internal Technical Report / November 1996
Laboratory Sediment Bioassay Report on Upper St. Clair River Sediments in the Vicinity of Industrial Point Sources 1994 & 1995
EMRB and Southwestern / MOEE Pub. ISBN 0-7778-6039-2 / February 1997

TITLE: CLIENT / STATUS / DATE
Sediment and Biological Assessment on Canagagique Creek 1996
Uniroyal PAC and West Central / Internal Technical Report / February 1997

LIST OF LABORATORY SEDIMENT BIOASSAYS COMPLETED TO DATE FOR 1996/97.

STUDY AREA	CLIENT	NO. SAMPLES/ 3 TEST ANIMALS	DATE COMPLETED 1996
Canagagique Creek	West Central	7	June
Paintball Study	Niagara Escarpment CA	6	June
Lyons Creek	West Central	4	July
Ottanobee River	EMRB & Eastern	5	October
Richardsons Creek	West Central	2	November
Humber Bay	Environment Canada & MTRCA	11	December

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